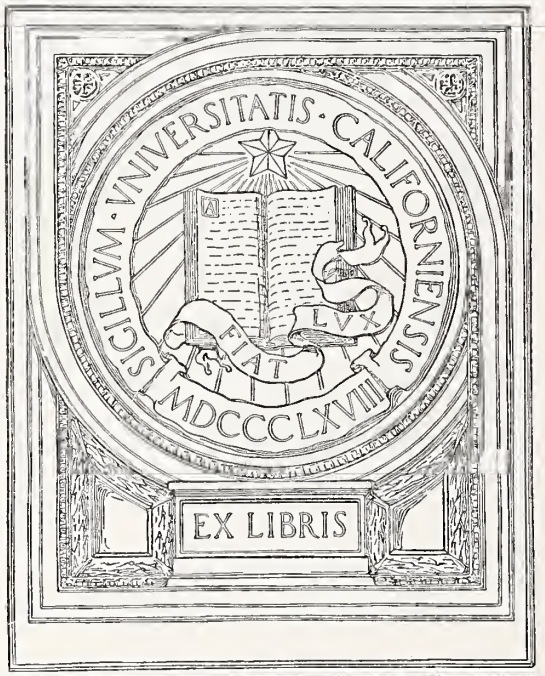
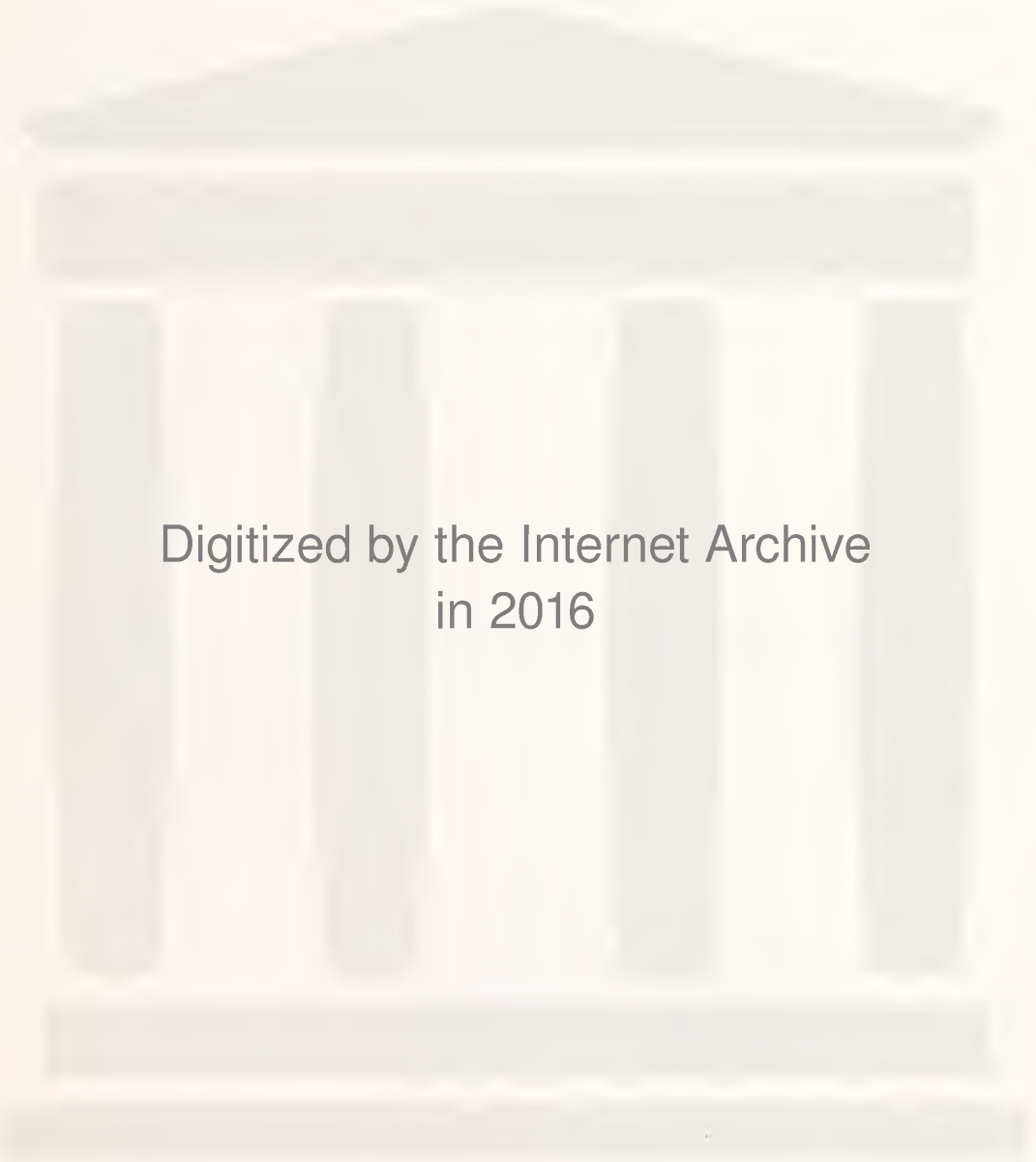
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Arizona Medicine

JOURNAL OF ARIZONA MEDICAL ASSOCIATION
MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

July, 1964
Vol. 21, No. 7

FEATURES:

The Condition of Asthmatic Patients After Daily Long-term Corticosteroid Treatment 463
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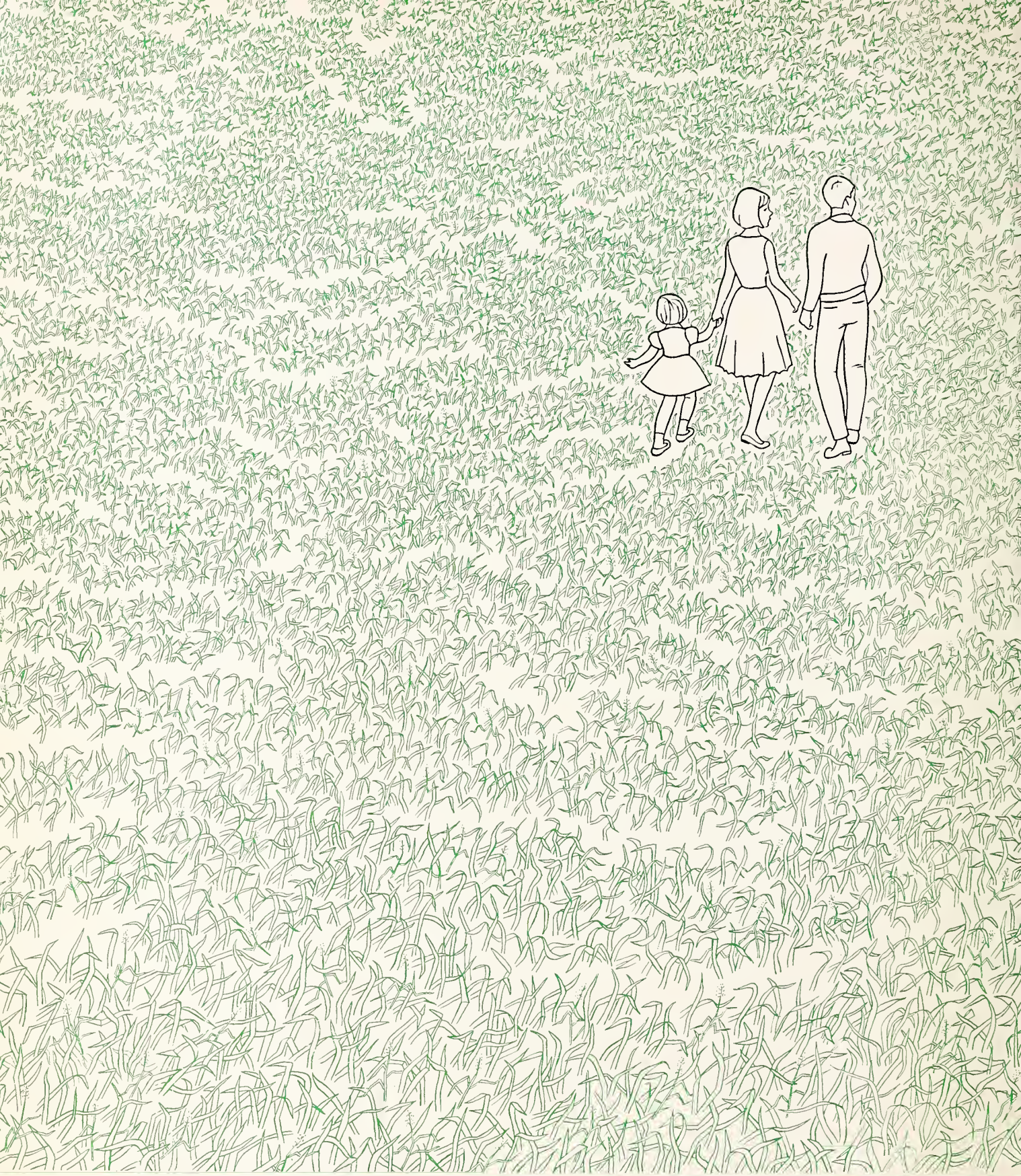
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Arizona Medicine

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

July, 1964

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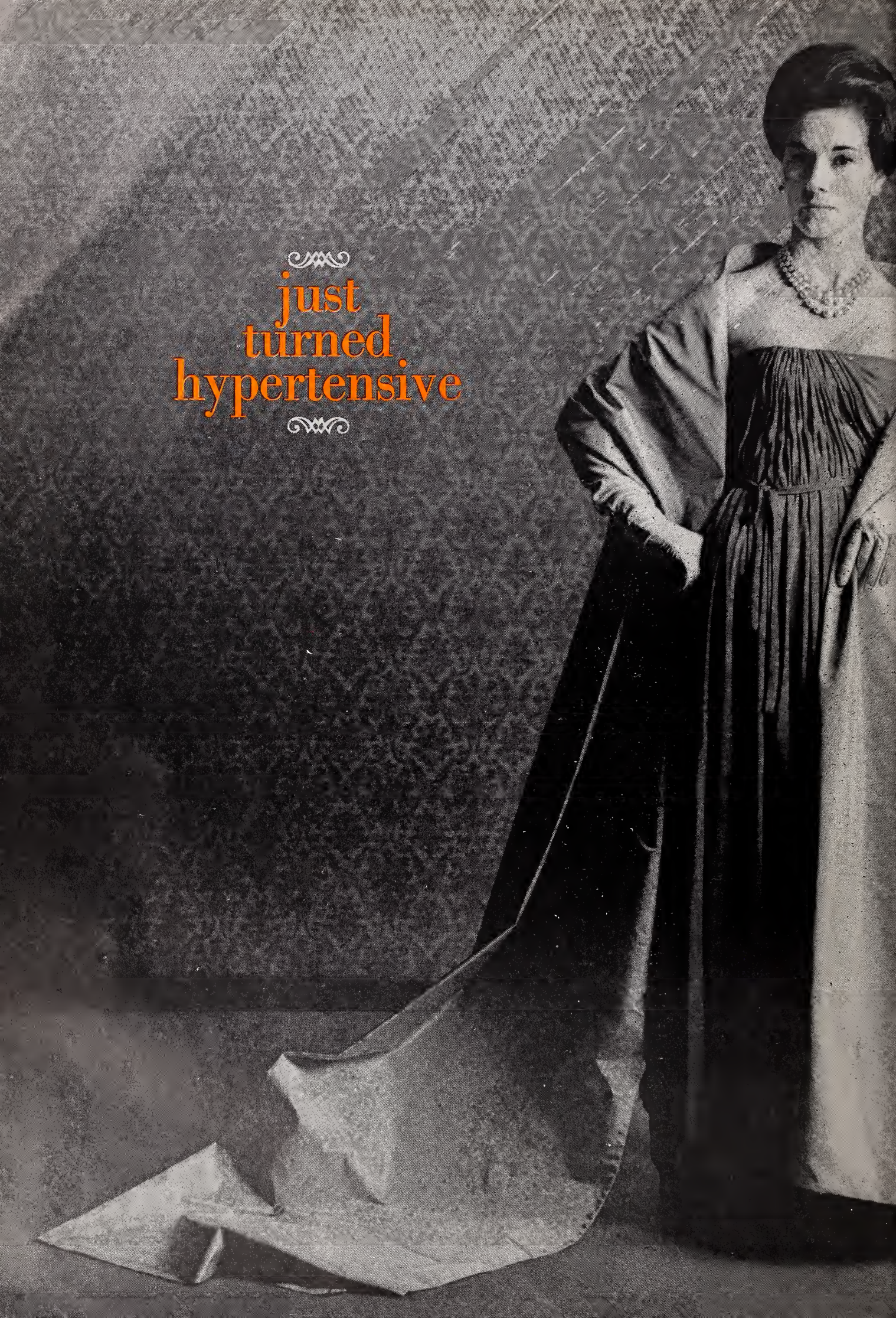
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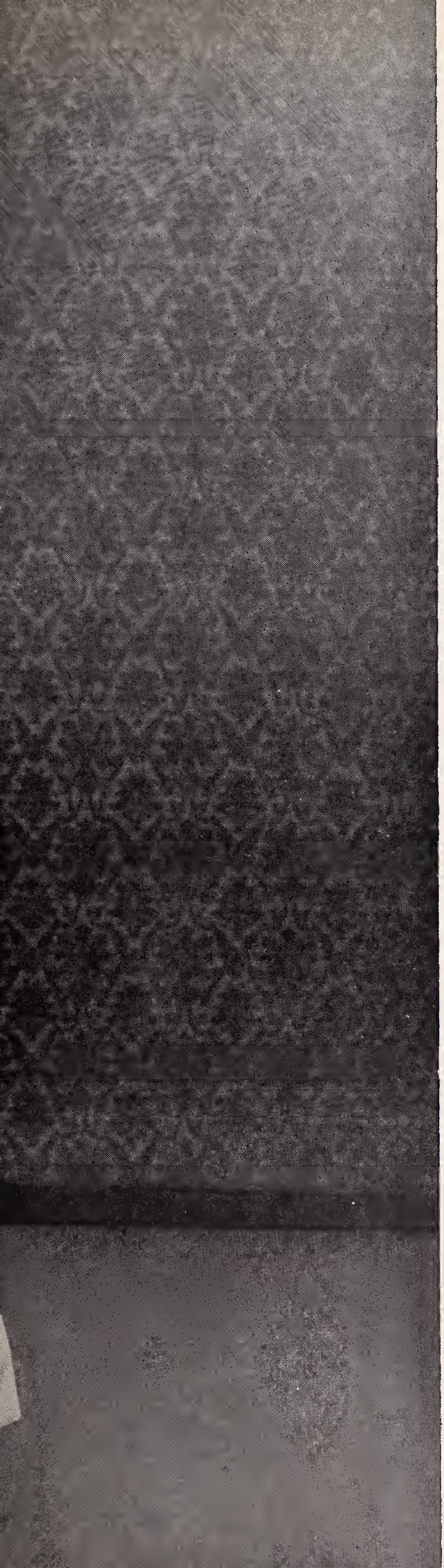
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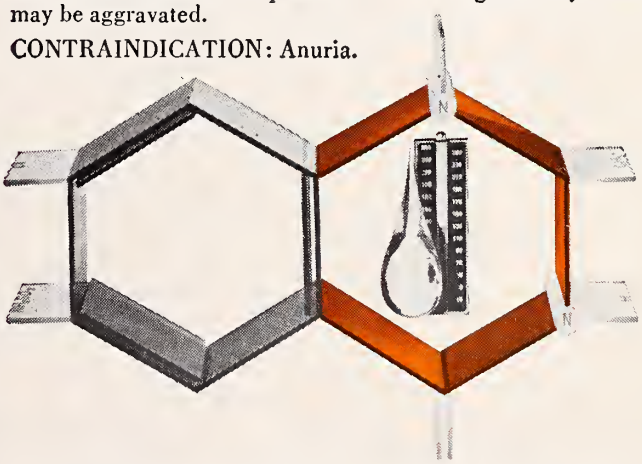
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1. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. *J. Amer. Geriat. Soc.* 11:945 (Oct.) 1963.
2. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, California, Nov. 25-28, 1962.

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Complete officer and committee listings will appear in the December issue.

BOARD OF DIRECTORS

Meeting of the Board of Directors of The Arizona Medical Association, Inc., held Tuesday, April 28, 1964, in the Terrace Lounge of the San Marcos Hotel, Chandler, Arizona, convened at 8:24 P.M., James E. O'Hare, M.D., Vice-President and Chairman, presiding.

ROLL CALL

PRESENT: Drs. Baldwin, Earl R.
Beaton, Lindsay E.
Brazie, Walter
Brewer, W. Albert, Pres.-Elect
Derickson, Philip S.
Dudley, Jr., Arthur V., Treas.
Dysterheft, Arnold H.
Eisenbeiss, John A.
Finke, Howard W.
Flynn, Richard O.
Henderson, Charles E., Secy.
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Lorenzen, Robert F.
McNally, Joseph P.
Melick, Dermont W.
O'Hare, James E., Vice Pres. and Chairman
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Rhu, Jr., Hermann S.
Smith, Noel G.
Steen, William B., Pres.
Taylor, Ashton B.
Yount, Jr., Clarence E.

Staff: Boykin, Paul R., Assistant Executive Secretary
Carpenter, Robert, Executive Secretary
Robinson, Bruce E., Executive Assistant
Jacobson, Edward, Counsel

MINUTES

Minutes of the meeting of the Board of Directors held February 9, 1964, approved.

BOARD OF DIRECTORS

Southern District Director

Resignation of Earl R. Baldwin, M.D. (Tucson), Southern District Director, elected for the term 1962-65, accepted. Replaeement for the unexpired term to be considered by the House of Delegates in Annual Meeting following.

Membership

The ad hoc Committee for the Study of Membership of the Board of Directors in meeting held February 9, 1964, recommended preparation and presentation to the House of Delegates of a resolution setting forth the composite of membership of said Board of Directors to be limited to a total of twenty-four (24), including twelve (12) officers: the President, Past President, President-Elect, Vice President, Secretary, Treasurer, Speaker of the House, Editor-in-Chief, Delegates (2) to AMA, and Alternate Delegates (2) to AMA; and in addition thereto, twelve (12) District Directors, five (5) representing the Central District, three (3) representing the Southern District, and one (1) each representing the Northeastern District, Northwestern District, Southeastern District, and Southwestern District. Recommended referred to the House of Delegates for consideration.

Board of Medical Examiners

Attention directed to two (2) membership vacancies on the Board of Medical Examiners of the State of Arizona occurring July 1, 1964 (Arnold H. Dysterheft, M.D., McNary-Apache; and Francis M. Findlay, M.D., San Manuel-Pinal). Under the statute, neither of the two members mentioned may be considered for re-appointment. Replacements will be considered, one for a term of five (5) years expiring July 1, 1969, and the other for a term of four (4) years expiring July 1, 1968 (this, in line with statute ultimately providing that one term of five (5) years shall expire each year). Carlos C. Craig, M.D., Phoenix-Maricopa; W. R. Manning, M.D., Tucson-Pima; and Roy O. Young, M.D., Mesa-Maricopa (formerly of Flagstaff-Coconino), each appointed in 1962 for an individual term of three (3) years each, will continue to hold offiee until July 1, 1965. At that time, such three vacancies will be filled for terms of five (5), two (2), and one (1) years respectively. Action laid over at least until Friday of this week.

ARMPAC — Membership

In line with action of the Board of Directors in meeting held February 9, 1964, it was reported that all members appointed to the Board of Directors of ARMPAC had accepted the assignment, with the exceptions of Mrs. Albert O. Daniels, Prescott-Yavapai; and Mrs. Richard L. Dexter, Tucson-Pima. Mrs. Lavern D. Sprague, Tucson-Pima, was appointed to fill one of these two vacancies. Dr. John F. Kahle, Flagstaff-Conconino, was appointed to fill the other vacancy.

1963 Medical Directory

Authorized reimbursement to the Board of Medical Examiners of the State of Arizona the sum of $132.89 representing half of the deficit expenditure for the joint publication of the 1963 Medical Directory, representing the differential between cost and sales income.

INDUSTRIAL RELATIONS COMMITTEE

Cardiology Consultants

Approved membership composite of Cardiology Consultants agreeing to serve the Industrial Commission of Arizona as a Cardiology Board of Consultants, including Samuel J. Grauman, M.D. (Tucson); Monroe H. Green, M.D. (Phoenix); and Robert E. Nenad, M.D. (Phoenix). Industrial Commission acknowledges reporting of Cardiology Board of Consultants appointed and outlines suggested procedure in evaluation of cardiac cases. Reeeived.

Medical and Surgical Fee Schedule

Filed by the Industrial Commission of Arizona is a certified copy of the minutes of its meeting, held February 28, 1964, resolving to adopt the third revision of the Medical and Surgical Fee Schedule using the relative value conversion factor of 4.50, as accepted by The Arizona Medical Assoeiation, Inc., pointing out that such agreement encompasses the adoption of the new fee schedule effective May 1, 1964, upon the condition that the Commission will not anticipate any additional requests for alterations or additions for the period of at least three (3) years. Rceeived.

MEDICAL ECONOMICS COMMITTEE

Medicare Contract No. DA-49-192-MD-116

Affirmed execution of Supplemental Agreement ID. No. 11606, Medicare Contract No. DA-49-192-MD-116, extending the Contract period beginning March 1, 1963, and ending March 31, 1964, to May 31, 1964.

Medicare Contract No. DA-49-192-MD-(?)

The Medical Economics Committee, in meeting held April 3, 1964, with Colonel Frank E. Stillman, Jr., Executive Officer, ODMC, discussed in detail the basis of renewal of the Medicare Contract with adjustment of the existing fee schedule. It was concluded that it be recommended to the Board of Directors that the Medicare Contract be continued for a term of one (1) year on the basis of the prevailing fee schedule. Recommendation concurred in; new or continuing Contract authorized executed on the basis of the existing Contract and fee schedule; and that ODMC, through Colonel William H. Hayes, MSC, USA, Contracting Officer, be informed this Association will entertain such renewal on the basis as indicated.

PROFESSIONAL COMMITTEE

Accreditation of Nursing Homes

Recommendation, in the matter of formation of a National Council on Accreditation of Nursing Homes, that the Board of Directors look with favor on this project, jointly sponsored by the American Medical Association and the American Nursing Home Association, for the accreditation of licensed nursing homes; that further details be sought; and that information relative thereto be disseminated to the component county medical societies for their action. Received.

Cancer Registries

Recommendation that the Arizona hospitals with tumor registries be requested to report within three (3) months and annually thereafter their statistics to the Professional Committee of this Association, and that the State Cancer Division, of the American Cancer Society, be so advised requesting their approval and cooperation. Received.

Civil Defense

Recommendation that it be recommended to the Governor of the State of Arizona that his program for civil defense in the State be included and made a part of the Disaster Medical Care Program of the Arizona State Department of Health. Accepted.

Rural Health Problems

Recommendation that the Arizona State Department of Health be requested to report on the extent of the non-migrant migrant health problems in Arizona, particularly as they relate to Maricopa and Pinal Counties, for the edification of the Professional Committee. Accepted.

Convalescent and Nursing Homes

With reference to rules and regulations for convalescent and nursing homes, recommends and reaffirms previous recommendation that the Arizona State Department of Health be urged to require that all facilities designated as hospitals be required to have a clinical pathological laboratory and radiological facility within the hospital and that the nursing homes, or so designated institutions, be required to have twenty-four hour attendance by registered nurses.

Board reaffirms previous stand with the modification that clinical pathological laboratory and radiological facility shall be required to be "within" the hospital and not "in proximtiy" as previously indicated.

Day Care Facilities

Recommendation that the resolution of the Arizona Pediatric Society and the Maricopa County Pediatric Society, relative to legislation providing for state control of inspection and licensing of day care facilities for preschool children in Arizona, be accepted; and that Senate Bill No. 260, before the 26th Arizona State Legislature, for licensing of day care centers be supported. Adopted.

University of Arizona Rehabilitation Center

In the matter of establishment of a Rehabilitation Center at the University of Arizona (Tucson), recommndation that consideration be given the necessity of urging the need for medical supervision for all state institutions seeking funds for development of medical facilities. Accepted.

Mental Retardation

Directed that Professional Committee be instructed by this Board of Directors to study the administrative problem connected with use of state and federal funds for the mentally retarded in this State, and that the Professional Committee as a whole be asked to study this associate with the possible role of crippled children's services or within the scope of activity of the Maternal and Child Health Subcommittee.

Hospital Licensure

Submitted for review, by the Arizona State Department of Health, is a copy of revised rules and regulations proposed by that Department for the licensing of hospitals in Arizona. The Arizona State Board of Health will consider such revisions and, on approval of the suggested changes, a public hearing will be conducted by the Hospital Advisory Council prior to filing the revisions with the Secretary of State. Received.

Ownership of Drug Dispensaries

In accordance with the AMA's code of ethics in the matter of ownership of drug dispensaries by doctors of medicine, it is concluded that, as long as such ownership is in the interest of the patient, it is considered to be ethical and that local county medical societies should review questions of abuse. Confirmed.

Prescription Legend Drugs

It is recommended (1) that the existing Arizona pharmacy law and Board of Pharmacy be supported in its effort to uphold drug standards and legitimate channels of supply; (2) that, on approval of such action, a letter be directed to the Arizona Board of Pharmacy advising it thereof, calling to its attention the responsibilities placed on the pharmacist as to service and economic integrity; (3) that the problem be reviewed at appropriate intervals, securing data regarding the situation in the other United States. Approved with the recommendation that the matter be referred to the Legislative Committee for its consideration.

Nursing

Action on report of Dermont W. Melick, M.D., in the matter of nursing and use of technicians in the operating room, deferred until the next regular meeting of this Board.

Licensing of Play Schools - Nurseries - Day Care Centers

Resolution of the Arizona Pediatric Society setting forth basis for state inspection and licensing of play schools, nurseries, and day care centers for the preschool child in Arizona recommended supported. Received.

Health Education Instruction

Development of instruction in health education in secondary schools in Arizona, recommended by the Arizona Congress of Parents and Teachers, Inc., favored. Received.

National Voluntary Health Conference

Attendance of W. Albert Brewer, M.D., as a representative of the Phoenix Community Council and this Association at the National Voluntary Health Conference of the AMA, to be held in Chicago, September 17 and 18, 1964, approved.

Senate Bill 180

Suport of Senate Bill No. 180, before the 26th Legislature of the State of Arizona, dealing with control of air pollution in Arizona at the state level, recommended. Referred to Legislative Committee for consideration.

COMMUNICATIONS

Mental Health Legislation

South Carolina Medical Association adopts resolution through its House of Delegates detailing its belief that, if mental health community programs are to be properly developed and administered, that organized medicine must on all levels — community, state, and national — be consulted with and offered an opportunity to participate in the development of these programs. Received.

Cigarette Smoking

Pima County Medical Society adopts resolution urging all its members and the medical profession in general to promote an educational campaign toward the public in the matter of cigarette smoking and the inhalation of other atmospheric pollutants, having an association and relationship which strongly suggest a cause and relationship with chronic bronchitis, pulmonary emphysema, cor pulmonale, cardiovascular disease, and cancer of the lung. Received.

Animal Research

National Society for Medical Research submits report on state of effort to prevent enactment of federal statutory restrictions on animal research. Adoption of resolution opposing curtailment of animal research and financial support of NSMR toward this objective sought. Received.

Medico-Legal Institute

Arizona State Nurses Association expresses grateful appreciation to The Arizona Medical Association, Inc. for its assistance in providing faculty (Counsel of the Association, Mr. Edward Jacobson) for the Medico-Legal Institute conducted in Phoenix May 14 and 15, 1964. Received.

OTHER BUSINESS

Appreciation Plaque

By unanimous vote of the Board, it was determined and authorized that a fitting plaque of appreciation be prepared and presented to the Honorable Harold C. Giss, Senator of the State of Arizona, for his many and substantial contributions to the progress of medicine and the protection and improvement of the public health in Arizona.

Golf and Bowling

The Board determined that there would be no financial contribution authorized associate with annual golf and bowling tournaments scheduled to be held during the Annual Meetings of the Association.

MEETING ADJOURNED AT 11:45 P. M.

Charles E. Henderson, M.D.
Secretary

BOARD OF DIRECTORS

Meeting of the Board of Directors of The Arizona Medical Association, Inc., held Friday, May 1, 1964, in the Arcade Room of the San Marcos Hotel, Chandler, Arizona, convened at 5:10 P. M., James E. O'Hare, M.D., President-elect, presiding.

ROLL COLL

PRESENT: Drs. Beaton, Lindsay E., Delegate to AMA; Brazie, Walter, Speaker of the House; Brewer, W. Albert, President; Cloud, Jr., Daniel T., Alternate Delegate to AMA; Derickson, Philip G., Southern Distriet Director; Dexter, Richard L., Southern District Director; Dierker, Hugh E., Northwestern District Director; Dudley, Jr., Arthur V., Treasurer; Dysterhelft, Arnold H., Northeastern District Director; Finke, Howard W., Southwestern District Director; Flynn, Richard O., Central District Direetor; Henderson, Charles E., Secretary; Jarrett, Paul B., Vice President; Lorenzen, Robert F., Editor-in-Chief; McDaniel, W. Shaw, Central District Director; Meliek, Dermont W., Delegate to AMA;

O'Hare, James E., President-elect; Price, Robert A., Central District Director; Rhu, Jr., Hermann S., Southern District Director; Smith, Noel G., Central District Director; Steen, William B., Past President and Alternate Delegate to AMA.

Staff: Boykin, Paul R., Assistant Executive Secretary; Carpenter, Robert, Executive Secretary; Robinson, Bruce E., Executive Assistant.

EXCUSED: Drs. Jensen, Thomas W., Southeastern District Director; Taylor, Ashton B., Central District Director.

BOARD ORGANIZATION

Doetor O'Hare welcomed the recently elected members of the Board of Directors: Daniel T. Cloud, Jr., M.D. (Phoenix), Alternate Delegate to AMA; Richard L. Dexter, M.D. (Tueson), Southern District Director; Hugh E. Dierker, M.D. (Flagstaff), Northwestern District Director; and W. Shaw McDaniel, M.D. (Phoenix), Central District Director.

Doetor Steen nominated Paul B. Jarrett, M.D., Vice President, to serve as Chairman of the Board for the ensuing year.

It was regularly moved and unanimously carried that nominations be closed, Doctor O'Hare declaring Doctor

Jarrett unanimously elected as Chairman of the Board for the ensuing year. Doctor O'Hare relinquished the Chair and Doctor Jarrett assumed the Chairmanship.

COMMITTEE MEMBERSHIP APPOINTMENTS

STANDING COMMITTEES

Benevolent and Loan Fund Committee

Doctors Andre J. Bruwer (Tucson) and A. J. Ochsner (Yuma) were appointed members of this committee for the term 1964-67. Doctor Daniel T. Cloud, Jr. (Phoenix) was re-appointed Chairman for the year 1964-65.

Grievance Committee

Doctor Francis M. Findlay (San Manuel-Pinal) was re-appointed a member of this committee and Doctor C. Herbert Fredell (Flagstaff-Coconino) was appointed a member of this committee for the term 1964-67. Doctor William B. Steen (Tucson), Past President, assumes the Chairmanship for 1964-65 (Specified).

History and Obituaries Committee

Doctor Harold W. Kohl, Sr. (Tucson) was re-appointed and Doctor Maurice Rosenthal (Phoenix) was appointed, members of this committee for the term 1964-67. Doctor John W. Kennedy (Phoenix) was appointed Chairman for the year 1964-65.

Industrial Relations Committee

Doctors Richard E. H. Duisberg (Phoenix-NP) and Morris E. Stern (Phoenix-ANES) were appointed members of this committee for the term 1964-67 and Doctor John H. Ricker (Phoenix-OR) was appointed Chairman for the year 1964-65.

Considerable discussion was held on the subject of whether or not an Internist should be a member of this committee and it was directed that such consideration be taken under advisement.

Legislative Committee

Doctors Ben P. Frissell (Phoenix) and Jesse D. Hamer (Phoenix) were re-appointed and Doctors Robert V. Horan (Globe) and Zenas B. Noon (Nogales) were appointed members of the Legislative Committee for the term 1964-67. Doctor Hamer was appointed as Chairman for the term 1964-65.

The Board determined to continue the Advisory Body to the Legislative Committee consisting of the component society Presidents currently holding office, or the component society Legislative Chairmen to be selected at the discretion of the component county society.

Medical Economics Committee

Doctor Ian M. Chesser (Tucson) was re-appointed and Doctor George L. Hoffman, Jr. (Mesa) was appointed, members of the committee for the term 1964-67. Doctor Chesser was appointed Chairman for the year 1964-65. Doctor Hermann S. Rhu, Jr. (Tucson) was appointed a member of the committee for a term of two years (1964-66) to complete the requirements of a total membership of six.

Medico-Legal Committee

Professional Committee

Professional Liaison Committee

In accordance with a resolution adopted by the House of Delegates on May 1, 1964, the activities of the Medico-Legal Committee; the Professional Committee; and the Professional Liaison Committee were combined; the Chairman to be selected by the President and approved by the Board of Directors; and the membership of the committee to be determined by the President with the assistance and guidance of the Chairman of the Professional Committee.

Doctor Jack E. Brooks (Phoenix) was appointed Chairman of the Professional Committee for the year 1964-65.

Public Relations Committee

Doctor Paul B. Jarrett, Vice President of ArMA was appointed Chairman of the Public Relations Committee for the year 1964-65. The members for replacement or re-appointment were delayed pending contact and advice from the county medical societies and approval at a later meeting of the Board of Directors.

Publishing Committee

Doctors William M. Hindman (Tucson) and Chester G. Bennett (Phoenix) were appointed members of the Publishing Committee for the term 1964-67; and Doctor Robert F. Lorenzen (Phoenix), Editor-in-Chief will serve as Chairman of this committee for the term 1964-65 (Specified).

Scientific Assembly Committee

Doctors Arthur R. Nelson (Phoenix-TS-Central) and Edward Sattenspiel (Phoenix-OBG-Central) were re-appointed and Doctors Philip G. Derickson (Tucson-OR-Southern) and Robert P. Mason (Phoenix-R-Central) were appointed, members of the Scientific Assembly Committee for the term 1964-67. Doctor Richard L. Dexter (Tucson-I-Southern) was appointed Chairman of the Scientific Assembly Committe for the term 1964-65. It is noted that the By-Laws specify that Paul B. Jarrett, M.D., Vice President is specified as a member of this committee.

SPECIAL COMMITTEES:

Articles of Incorporation and By-Laws Committee

Doctors Walter Brazie (Kingman) and Paul B. Jarrett (Phoenix) were re-appointed and Doctor William B. Steen (Tucson) was appointed, members of the Articles of Incorpoartion and By-Laws Committee fo rthe 1964-65 year. Doctor Walter Brazie was re-appointed Chairman for the 1964-65 year.

Central Office Advisory Committee

The Board designated the Executive Committee consisting of Arthur V. Dudley, Jr., M.D., Treasurer (Tucson) as Chairman; W. Albert Brewer, M.D., President (Phoenix); James E. O'Hare, M.D., President-elect (Tucson); Charles E. Henderson, M.D., Secretary (Phoenix); and Paul B. Jarrett, M.D., Vice President (Phoenix), to assume the responsibilities of the Central Office Advisory Committee. It is noted that the Central Office Advisory Committee continues the responsibilities of the Legal Service Committee.

Executive Committee

The Executive Committee of the Board of Directors consisting of the President; President-elect; Vice President; Secretary and Treasurer of the Association, continues as designated by the Board of Directors at its meeting held June 5, 1960.

Procurement and Assignment Committee

The Board determined to continue the designated Procurement and Assignment Committee as appointed

by the Executive Committee of the Board of Directors in emergency session held March 5, 1961, as follows: Doctors John F. Currin (Falgstaff); Joseph M. Greer, Chairman (Phoenix); Robert E. Hastings, Sr. (Tucson); Ruland W. Hussong (Phoenix); Robert M. Matts (Yuma); and Joseph P. McNally (Prescott).

ARMPAC

On request of William B. Steen, M.D., Chairman of the Board of Directors of ArMPAC, the Board of Directors by motion regularly made and carried, increased the Board of Directors of ArMPAC to twenty (20) members, providing there be no less than eleven (11) doctors of medicine on this Board and that the Board of Directors of ArMA continue to assume the responsibility of approval of members appointed to the ArMPAC Board of Directors.

John F. Kahle, M.D. of Flagstaff and Mrs. Lavern D. Sprague of Tucson were appointed to the Board of Directors of ArMPAC.

ALTERNATE DELGATE TO AMA

It was regularly moved and carried to accept the verbal resignation of Arnold H. Dysterheft, M.D. as an Alternate Delegate to AMA, for the balance of his term expiring December 31, 1964.

On motion regularly made and carried, the Board of Directors appointed William B. Steen, M.D. to assume the office of Alternate Delegate to AMA for the unexpired term effected by the resignation of Doctor Dysterheft; the term of office ending December 31, 1964.

By motion regularly made and carried, it was determined that the Alternate Delegates to AMA attend the annual and clinical meetings of the American Medical Association; their expenses to be assumed by The Arizona Medical Association, Inc. It was pointed out that ArMA would then officially be represented at these meetings by their Delegates to AMA; their Alternate Delegates to AMA; the Secretary; and the Executive Secretary, totalling six (6) persons.

PROFESSIONAL COMMITTEE

Maternal and Child Health

It being noted that the House of Delegates of ArMA in meeting held May 1, 1964 having altered the By-Laws of ArMA, effecting a change in the Professional Committee of this Association, it was regularly moved and carried that this Board appoint, for an interim meeting scheduled to be held Saturday, May 2, 1964, the continuation of the Subcommittee on Maternal and Child Health of the Professional Committee, as indicated following:

R. S. Armstrong	W. J. Moore
Martin Cohen	M. R. Palmer
O. L. Cranmer	H. E. Pollock
P. E. Dew, Secretary	H. S. Rhu, Jr., Chairman
R. S. Ganelin, Vice Chmn.	Joseph Saba
M. J. Kartchner	Edw. Sattenspiel
W. D. Lawrence	D. D. Smith
J. H. McEvers	M. S. Withers
R. E. Montgomery	F. H. B. Yount

MEETING ADJOURNED AT 6:15 P. M.

Charles E. Henderson, M.D.
Secretary

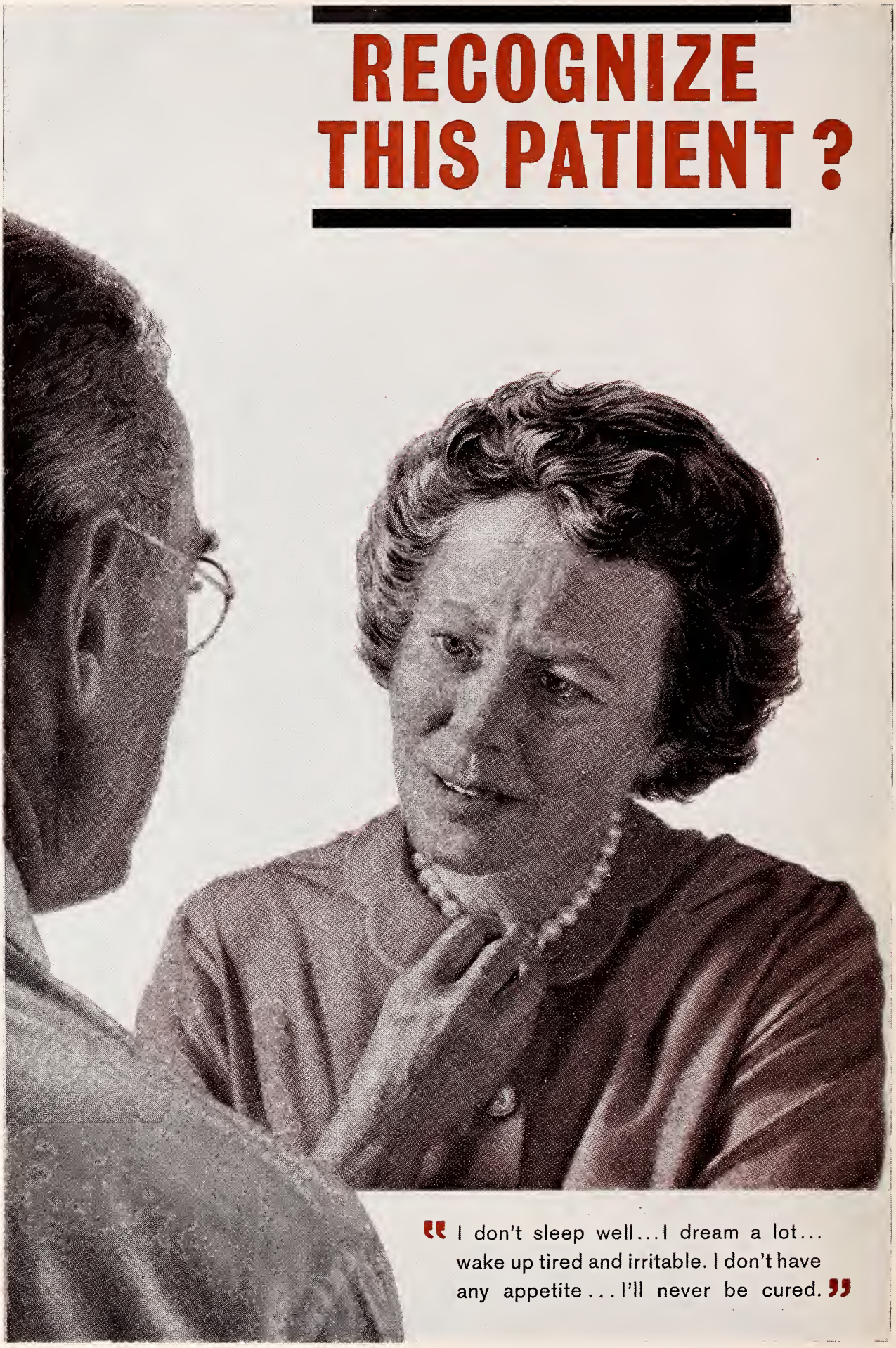
In Memoriam

A lifetime spent in the practiee of medicine earries it's own reward. Those who make up the roster of the departed should be honored and remembered by us, the living, for the eontributions they have individually and eollectively made to the alleviation and amelioration of suffering. Their prineipal serviee to mankind may have been to assuage the results of the indiseretions and foibles of their patients or they may have made heroic efforts in the very forefront of the fight against disease. Often they have given of unusual talent to elevate society in ways outside the medieal practiee.

Charles H. Laugharn, M. D. 4/2/63
Thomas O. Rowley, M. D. 4/19/63
Paul J. Waltz, M. D. 4/29/63
Donald S. Bethune, M. D. 5/6/63
Howard P. Robinson, M. D. 5/16/63
Roy L. Fisher, M. D. 8/2/63
Edward M. Hayden, M. D. 8/5/63
W. Paul Holbrook, M. D. 9/16/63
Thomas A. Hartgraves, M. D. 9/17/63
Harold L. Lamb, M. D. 9/21/63
Douglas D. Gain, M. D. 10/6/63
Frank X. Marino, M. D. 12/4/63
Warner L. Crouch, M. D. 12/19/63
Henry Trautmann, M. D. 1/31/64
Robert S. Barrett, M. D. 2/4/64
Thomas S. Collings Sr., M. D. 2/13/64
Harry L. Goss, M. D. 2/13/64
John H. Patterson, M. D. 3/14/64
P. Paul Zinn, M. D. 3/31/64
Harold H. McLemore, M. D. 4/12/64
Hubert J. Adler, M. D. 5/2/64

To the memory of these men we pledge again, renewed dedication to their purposes and idealism of the practiee of the healing art.

The Arizona Medical Assoeiation


RECOGNIZE
THIS PATIENT ?
" I don't sleep well... I dream a lot... wake up tired and irritable. I don't have any appetite . . . I'll never be cured. "

When you recognize depression and anxiety related to an organic condition

—*add 'Deprol' to your therapy*

Typical organic conditions in which 'Deprol' helps control related depression and anxiety:

cardiovascular disorders ■ arthritis ■ cancer ■ menopause ■ alcoholism ■ obesity ■ asthma, hay fever and related allergies ■ chronic infectious diseases ■ dermatoses ■ G.I. disorders, and many other debilitating or life-threatening illnesses

Advantages of 'Deprol'

1. By relieving both depression and anxiety, 'Deprol' lifts the mood of the depressed patient without the agitation and "jitters" that often accompany "energizer" therapy alone.
2. 'Deprol' relaxes physical tensions, restores normal sleep and revives interest in food.
3. 'Deprol' acts rapidly—patients often respond within a week or two.
4. 'Deprol' is compatible with drugs used to treat co-existing organic conditions.
5. 'Deprol' is relatively nontoxic and free of side effects.

Deprol®

meprobamate 400 mg. + benactyzine hydrochloride 1 mg.

Side effects: Slight drowsiness and, rarely, allergic or idiosyncratic reactions, due to meprobamate, and occasional dizziness or feeling of depersonalization in higher dosage, due to benactyzine, may occur. **Contraindications:** Previous allergic or idiosyncratic reactions to meprobamate contraindicate subsequent use of meprobamate or meprobamate-containing drugs. **Precautions:** Should administration of meprobamate cause drowsiness, the dose should be reduced. Operation of motor vehicles or machinery or other activity requiring alertness should be avoided if these symptoms are present. Effects of excessive alcohol may possibly be increased by meprobamate. Although suicides with 'Deprol' have not been reported, prescribe cautiously and in small quantities to patients with suicidal tendencies. Massive overdosage of meprobamate may produce lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse. Even though it has not been reported with 'Deprol', consider the possibility of dependence, particularly in patients with history of drug or alcohol addiction; withdraw gradually after prolonged use at high dosage. *Complete product information available in the product package, and to physicians on request.*

Usual adult dosage: 1 tablet t.i.d. or q.i.d. May be increased gradually, as needed, to 6 tablets daily. With establishment of relief, may be gradually reduced to maintenance levels. **Supplied:** Light-pink, scored tablets Bottles of 50.

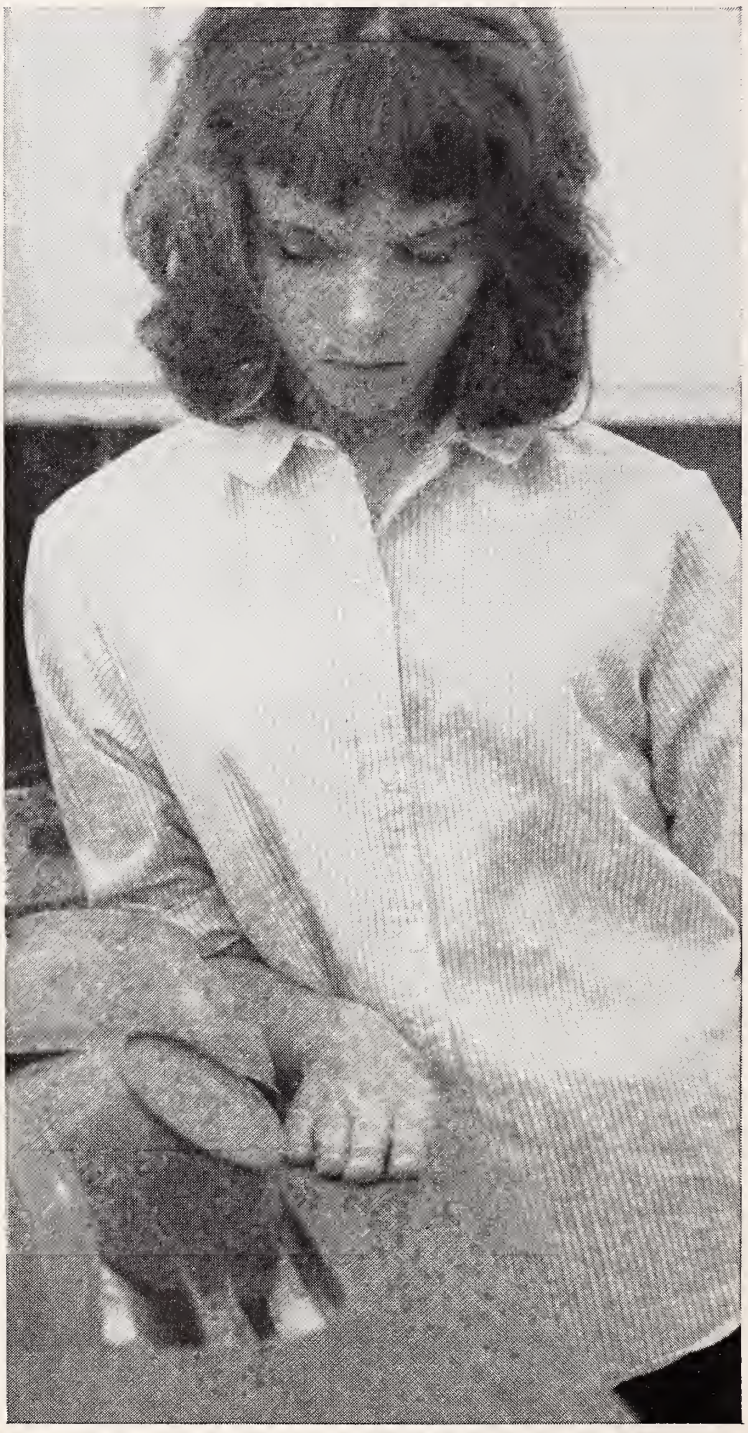
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For the "modern Cinderella"

pHisoHex®

enhances any acne treatment



"...No other disease has caused so much feeling of inferiority" as acne.[1] pHisoHex "...is a valuable part of the management...since in addition to its defatting and cleansing properties, it offers an antibacterial action which reduces skin bacterial flora."[2]

In a series of 42 patients, none "...failed to improve," when pHisoHex was added for the wash.[3] In another series of 67, acne lesions "...cleared in a matter of one to two weeks" in 50 per cent with pHisoHex.[4] In another series of 100 patients using pHisoHex and pHisoAc®, 79 showed excellent or good improvement.[2]

The frequent exclusive use of pHisoHex enhances adsorption of its 3% hexachlorophene content to the skin; there it remains as a tenacious film to fight bacteria *between* washings. pHisoHex cleans thoroughly—is nonalkaline, hypoallergenic and "kind" to the skin. Three to four washings a day are needed for constant degerming of skin, faster and better results.

pHisoAc Cream dries, peels and masks lesions—helps prevent comedones, pustules and scarring. Contains colloidal sulfur 6 per cent, resorcinol 1.5 per cent and hexachlorophene 0.3 per cent.

How supplied: pHisoHex is available in unbreakable squeeze bottles of 5 oz. and 1 pint, in unbreakable plastic bottles of 1 gallon and in combination package with pHisoAc Cream.

References: 1. Szymanski, F. J.: *Indust. Med.* 30:498, Nov., 1961. **2.** Wexler, Louis: *Clin. Med.* 70:404, Feb., 1963. **3.** Hodges, F. T.: *GP* 14:86, Nov., 1956. **4.** McLean, I. E. D.; Graham, K. T., and East, M. O.: *Practitioner* 189:82, July, 1962.

Winthrop

Winthrop Laboratories, New York, N. Y.



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FOR YOUR ELDERLY ARTHRITIC PATIENTS...

an effective **GERIATRIC** antiarthritic with

REASSURING SAFETY FACTORS

Effectiveness, dependability and reassuring Safety Factors make PABALATE-SF a logical choice for antiarthritic therapy in elderly patients—even when osteoporosis, hypertension, edema, peptic ulcer, cardiac damage, latent chronic infection and other common geriatric conditions are present. The potassium salts of PABALATE-SF cannot contribute to sodium retention...the enteric coating assures gastric tolerance...and clinical experience shows that this preparation does not precipitate the serious reactions often associated with corticosteroids or pyrazolone derivatives.

Side Effects: Occasionally, mild salicylism may occur, but it responds readily to adjustment of dosage. Precaution: In the presence of severe renal impairment, care should be taken to avoid accumulation of salicylate and PABA. Contraindicated: An hypersensitivity to any component.

Also available: PABALATE—when sodium salts are permissible. PABALATE-HC—Pabalate-SF with hydrocortisone.

Pabalate®-SF

In each persian-rose enteric-coated tablet: potassium salicylate 0.3 Gm., potassium aminobenzoate 0.3 Gm., ascorbic acid 50.0 mg.

—the new, convenient way to prescribe
PABALATE-SODIUM FREE

A. H. ROBINS CO., INC., RICHMOND 20, VIRGINIA

A statement to physicians concerning a new concept for feeding infants in the home

What is "Nursette"?

The Nursette disposable formula bottle is the ultimate in simplicity and safety for routine formula feeding. The Nursette unit consists of a glass bottle already filled with Enfamil in 20 cal./oz. dilution. No further preparation is required. Just twist off the cap, attach a conventional nipple unit of choice and the Nursette bottle is ready for feeding.

The Nursette, with Ready-to-Use Enfamil formula, is available in three sizes (4, 6 and 8 oz.) to keep pace with the infant's growing appetite. It is safe to store unopened without refrigeration and feed without warming, if desired. Also, there are no cans to open, no ingredients to mix or measure, no bottles to wash and sterilize.

Although the concept of a presterilized, ready-to-use formula sealed in a glass nursing bottle seems relatively simple—the actual production of such a unit is extremely complex. Ten years of research and development were required to solve technological problems and perfect the needed processes. While bottles filled with formula are in constant motion, high heat is applied for a critically short period. The result: a sterile formula with the natural whiteness of whole milk and maximal retention of all nutritional values.

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Who uses "Nursette"?

The Nursette unit is for routine feeding of normal i fants. Nursette with ready-to-use formula elimina much of the work and worry associated with curre methods of formula preparation. Consumer surve with hundreds of mothers indicate a high preferen for this new concept in infant feeding.

Infant feeding with the Nursette unit offers *practic* benefits to both the inexperienced parent and the ha ried multipara—without compromising nutrition quality. In turn, only a minimum amount of your tim is required for counseling anxious mothers on the pro lems of formula preparation.

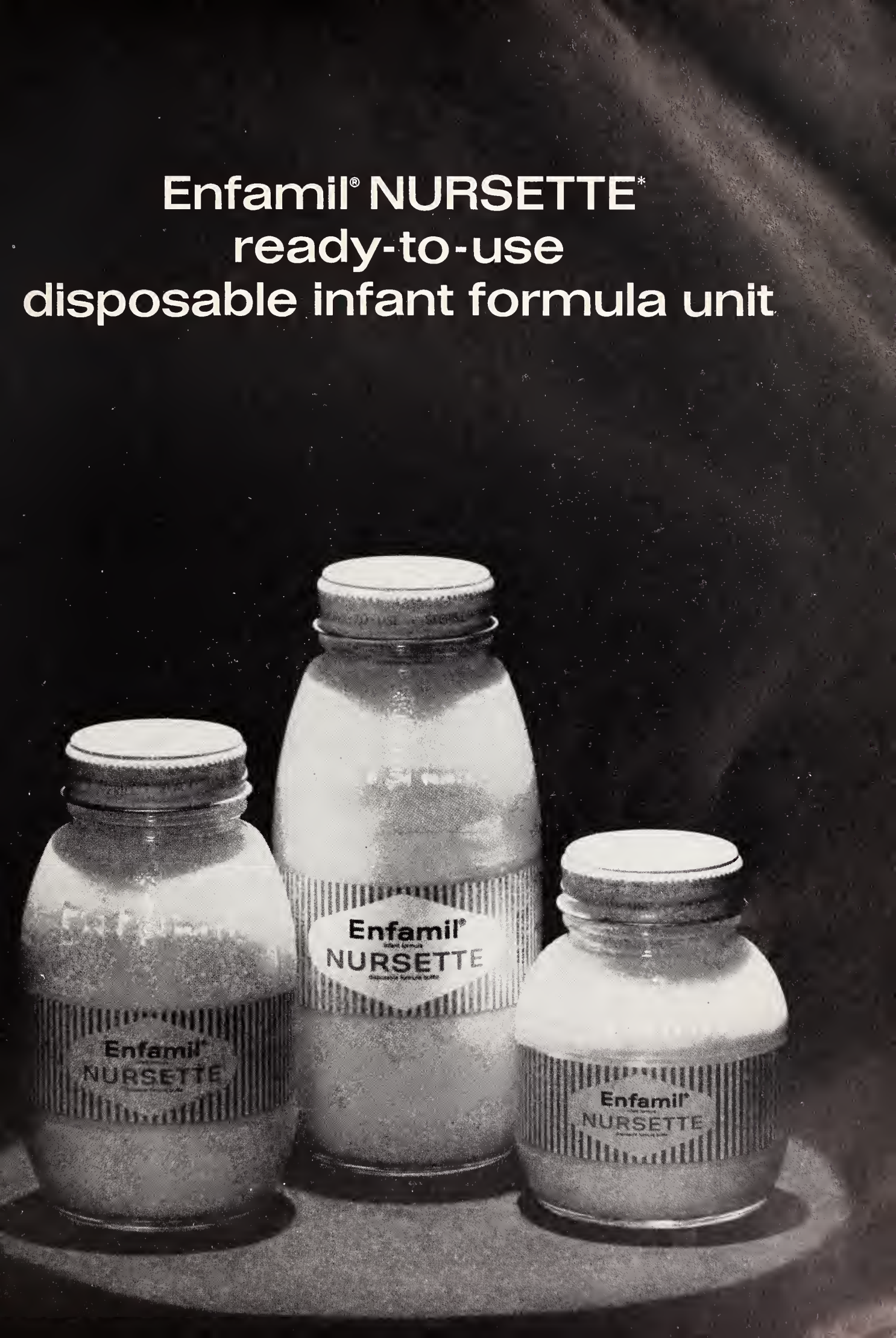
For infant feeding in the home, the Nursette dispos ble formula bottle provides clinically proven Enfam Infant Formula in the most practical and convenie form. This consistent 20 cal./oz. nutrition may be us exclusively or in conjunction with formula prepar from Enfamil concentrated liquid or powder.

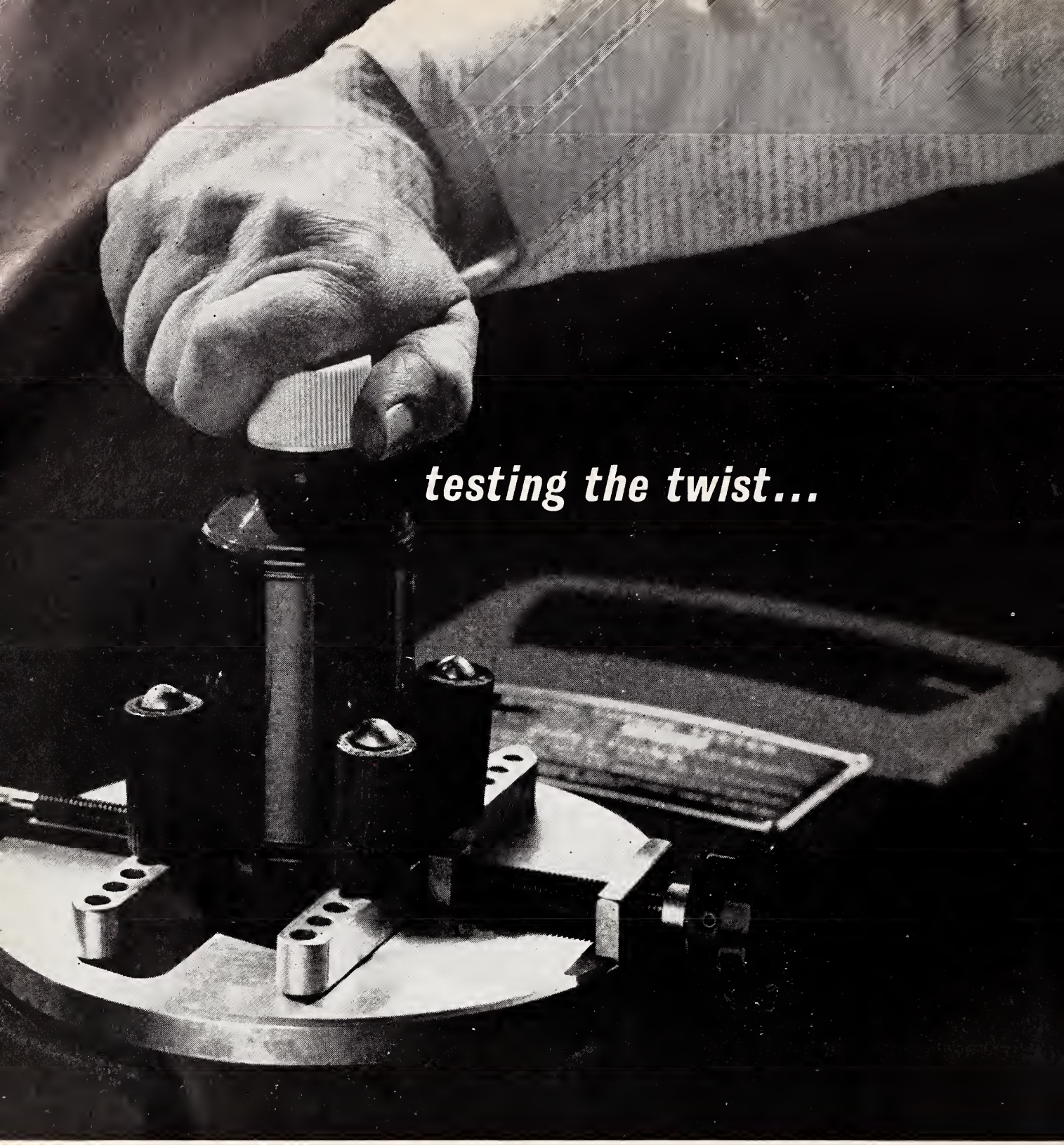
As the ultimate in simplicity and safety for hom feeding, the Nursette disposable formula bottle will, doubt, interest many parents. In keeping with our de cation of "Serving All Needs in Infant Nutrition Mead Johnson Laboratories is proud to make this ne product available to you and your patients.



Mead Johnson Laboratories

Symbol of service in medicine


Enfamil® NURSETTE*
ready-to-use
disposable infant formula unit
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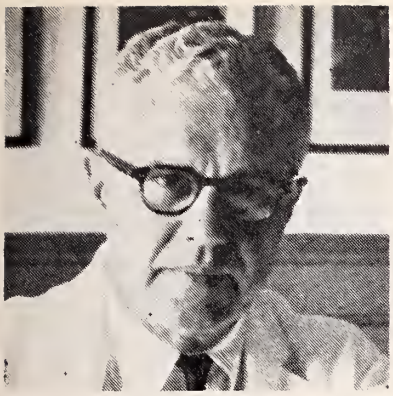


Putting the cap on a bottle sounds simple. Just make it tight enough to keep the contents in, prevent leakage, and protect the product; loose enough to be opened with ease. However, that isn't quite as simple as it sounds. ■ At Eli Lilly and Company, there are exact-tightness specifications for the cap of every bottle. Capping machines are carefully adjusted to apply just the right amount of torque (or twist) to tighten the caps. Then the tightness of the caps is double-checked . . . just to be sure. ■ That's where the torque tester comes in. At least once every fifteen minutes, five bottles are tested as they come out of the capping machine. They are placed on the torque tester, and the twist on the caps is measured . . . just one more of the many controls that add immeasurably to the quality of the finished product.

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Dr. Edmund L. Keeney

The condition of Asthmatic Patients after daily long-term corticosteroid treatment

by

Edmund L. Keeney, M.D.

This study of the side effect from long-term administration of small doses of corticosteroids to 25 asthmatic patients presents some interesting findings. Because of the high proportion of chronically ill individuals maintained on steroids in Arizona, it will be comforting to learn that many of the dreaded complications are not seen as frequently as commonly suspected.

IT HAS NOW been fourteen years since Hench[1] and his associates made public their discovery of the anti-inflammatory effects of cortisone and corticotrophin in rheumatoid arthritis and rheumatic fever. The initial hope that these hormones might quicken the spontaneous cure of these conditions was shattered. Soon the disastrous side effects of hypercortisonism thundered forth to sadden and haunt physician and patient alike. Cushing's syndrome and mesenchymal disease, such as periarteritis nodosa, were extravagant prices to pay for any kind of relief. Finally, the name of cortisone was humiliated by describing it as an expensive and dangerous "aspirin."

Today we recognize that such pronunciations were true under certain conditions and in a limited sense. The ominous side effects now seem to be related to enthusiastic overdosage, duration of use and somewhat to the corticosteroid formula. The synthetic analogues of cortisone and cortisol, that increase anti-inflammatory effect and decrease a sodium retention, have added a measure of safety, but the perfect corticoid analogue has not yet been discovered.

The prudent physician before prescribing a corticosteroid will weigh all the facts. If the possible benefits derived from the control of the disease outweigh the possible side effects, then a clinical trial is justified. The purpose of this report is to provide a number of facts relevant to the therapeutic use of small daily doses of corticosteroids in the treatment of asthma.

Twenty-five cases of intractable asthma treated for an average of 91 months with a daily average dose of 55 mg. of cortisone or a biologically equivalent amount of either cortisol or prednisone have been studied in the Allergy and Immunology Division, Scripps Clinic and Research Foundation. It is hoped that the resulting information will elucidate the problems arising in long-term hormonal therapy.

Method of Study

The 18 males and 7 females with intractable asthma who comprimise the present series were observed at weekly intervals in the Allergy and Immunology Division, Scripps Clinic and Research Foundation, and studied during periods of hospitalization after an average of 55, 67, 79 and 91 months of treatment. It was the intention of the author to limit the cases to those patients

Presented at the 72nd Annual Meeting, The Arizona Medical Association, Inc., Pioneer Hotel, Tucson, Arizona, May 3, 1963.

Medical Director and Member, Scripps Clinic and Research Foundation, La Jolla, California.

SIGNS AND SYMPTOMS OF CUSHING'S SYNDROME AND ADDISONS DISEASE. COMPARISON WITH ASTHMATIC SUBJECTS AFTER PROLONGED CORTICOSTEROID THERAPY.

SIGNS OR SYMPTOMS	ASTHMATIC SUBJECTS (25 CASES) PER CENT	CUSHING'S SYNDROME	ADDISON'S DISEASE
BODY WEIGHT	INCREASE 12 PS ♂37-75-54 WR ♀46-75-70 EW ♀32-50-44	INCREASE COMMON "PSEUDO-OBESITY" OCCASIONAL	LOSS COMMON
BLOOD PRESSURE	HIGH 4 EW ♀ 32-50-44 (136/85 to 154/112)	HIGH (above 150/90) COMMON	LOW (below 110/70) COMMON
SKIN	Pigmentation and transient vitiligo 4 CF ♂64-50-30	Purple stride and acne COMMON	Pigmentation and vitiligo COMMON
MENSTRUAL DISORDERS OR IMPOTENCE	NONE	COMMON	ABSENT
WEAKNESS	8 WR ♂48-75-70 JG ♀ 23-50-70	COMMON	COMMON
HIRSUTISM	4 JG ♀ 23-50-70	COMMON	ABSENT
MENTAL SYMPTOMS	Irritability and depression 12 WR ♂48-75-70 PS ♂37-75-54 JG ♀ 23-50-70	Irritability, depression and major psychosis COMMON	Transient and minor behaviour changes OCCASIONAL
GASTRO-INTESTINAL	NONE	OCCASIONAL	COMMON
PURPURA OR EASY BRUISABILITY	4 AP ♂75-75-84	COMMON	ABSENT
ANKLE EDEMA	4 CF ♂64-50-30	COMMON	ABSENT
POOR WOUND HEALING OR SEVERE INFECTIONS	NONE	OCCASIONAL	ABSENT

COMMON: Occurs more than 50%
OCCASIONAL: Occurs less than 50%

Table 1.

with intractable asthma. By definition, intractable asthma is a state of chronic asthma that is violent, relentless, stubborn and ineffectively managed by treatment held to be scientifically rational at the moment the patient comes under observation. Rational treatment included hyposensitization and bronchodilator, expectorant and antibacterial medications.

In the Scripps series, there were 18 males and 7 females; all were Caucasians. The males ranged in age from 23 to 73 years; the females from 37 to 75 years. Every patient had chronic infection throughout the bronchial tree and 18 had one or more of the paranasal sinuses chronically infected. The patients with chronic sinusitis received local medical and surgival treatment. Fifteen patients were considered to be allergic to inhalant antigens and had been receiving hyposensitization. All subjects had been taking a bronchodilator drug by mouth or injection and an expectorant. Each received a wide spectrum antibiotic drug at the time of an exacerbation of a respiratory-infection.

Symptoms and Signs

Patients on prolonged corticosteroid treatment should present symptoms and signs of Cushing's and Addison's disease. Table 1 presents the common symptoms and signs of these two disorders for comparison with those of the patients in this series. The word "common" in table 1 is employed to express an occurrence in more than 50 per cent of patients and the word "occasional" for less than 50 per cent. Numbers such as 37, 75 and 54 occurring after a patient's initials indicate respectively the age, and daily dose of corticosteroid in milligrams and the number of months of treatment.

HEMATOLOGICAL DATA BEFORE AND AFTER CORTICOSTEROID THERAPY

	BEFORE TREATMENT (23 PATIENTS)		AFTER TREATMENT (25 PATIENTS)	
	RANGE OF VARIATION	MEAN ± AVE. DEVIATION	RANGE OF VARIATION	MEAN ± AVE. DEVIATION
HEMATOCRIT (volumes % of cells)	40-54	47.4 ± 2.8	39-54	47.0 ± 3.2
SEDIMENTATION RATE (Wintrobe: mm in 1hr.)	0-38	14.6 ± 10.5	0-31	7.0 ± 5.3
LEUCOCYTES (per mm³)	5400-14,300	8,920 ± 1,760	5600-18200	10,400 ± 2400
(DIFFERENTIAL COUNT)				
NEUTROPHILS (%)	40-81	59 ± 9.6	49-77	61.0 ± 5.4
LYMPHOCYTES (%)	9-45	31 ± 8.7	21-45	31.0 ± 3.8
MONOCYTES (%)	0-6	2.6 ± 1.0	1-7	3.2 ± 1.6
EOSINOPHILS (%)	0-14	6.6 ± 4.2	0-24	4.6 ± 4.7

Table 2.

Laboratory Findings

The hematological data recorded in table 2 are presented in columns under range of variation and mean with average duration deviation before and after treatment. The differences were not significant.

The determined values for chemical constituents of the blood, recorded in table 3, after and during prolonged corticosteroid treatment for electrolytes, urea, creatine, creatinine and fasting "true" glucose were within the normal range for our laboratory. Three patients had a serum total cholesterol level that exceeded 320 mg. per cent, but the over-all average was within the normal range. Two patients had a protein bound iodine above 8 mcg. per cent, but their last dose of a

LABORATORY VALUES IN ASTHMATIC SUBJECTS AFTER PROLONGED CORTICOSTEROID THERAPY

BLOOD-CHEMICAL CONSTITUENTS	NO. PATIENTS	RANGE OF VARIATION	MEAN ± AVE. DEV.	NORMAL RANGE (SCRIPPS LAB.)
SODIUM, SERUM (mEq./L.)	25	136-146	140 ± 2.4	137-145
POTASSIUM, SERUM (mEq./L.)	25	4.0-5.3	4.4 ± .24	3.8-5.6
CHLORIDE, SERUM (mEq./L.)	25	97-110	104 ± 2.8	99-110
"CARBON DIOXIDE CAPACITY" SERUM, VENOUS (mEq./L.)	23	21-34	28 ± 2.0	23-28
UREA NITROGEN, SERUM (mg./100ml.)	25	9.5-23	15 ± 2.6	10-20
CREATINE (mg./100ml.)	21	0.1-1.9	0.7 ± 0.4	0.5-2.0
CREATININE (mg./100ml.)	20	0.1-1.3	0.9 ± 0.2	0.3-1.0
FASTING "TRUE" GLUCOSE (mg./100ml.)	25	53-100	71 ± 9.5	60-104
CHOLESTEROL	25	147-427	259 ± 44	130-320
FUNCTIONAL TESTS				
PROTEIN BOUND IODINE (µg/100ml.)	20	4.0-12.0	7.1 ± 1.4	4.0-8.0
TOTAL IODINE, SERUM (µg/100ml.)	20	4.6-12.0	7.7 ± 1.3	
I^{131} UPTAKE (% in 24 hrs.)	4	24-35	28 ± 4	10-45
BASAL METABOLIC RATE (%)	22	-15-+18	-3 ± 7	-15-+15

Table 3.

saturated solution of potassium iodide had been four weeks prior the determinations. The electrophoretic patterns of serum proteins, though not recorded in a table, were normal for every subject.

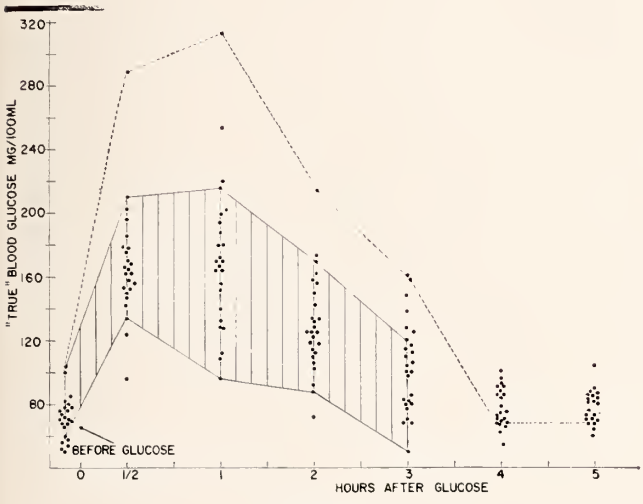


Table 4.

The results of oral glucose tolerance tests are depicted in table 4. For 3 days prior to testing for glucose tolerance, the subjects were prepared with a diet containing no less than 300 gm. of carbohydrate per 24 hours. Corticosteroid administration was not discontinued during the testing. Blood glucose was determined from finger blood as "true" glucose using a modification of the method of Nelson.[2] The zone demarcated with parallel bars pictures ranges for normals. The subjects in this series had a fasting "true" glucose within the normal range; none had glycosuria and ketonuria. One known diabetic received 75 mg. of cortisone for 40 months without mishap or difficulty in diabetic control. His tolerance test, typically diabetic, was not recorded in table 4. One subject, a 73-year-old man with a negative family history for diabetes mellitus, who had received 75 mg. of cortisone daily for 85 months, had a diabetic type of tolerance for glucose. The remaining patients, except for minor deviations, did not exhibit intolerance. Only one patient in the series admitted or had knowledge of the occurrence of familial diabetes mellitus; she had a normal test.

SOME MICROBIOLOGICAL studies were conducted. Sputum cultures for bacteria and fungi were obtained from all patients before and after treatment. Stool cultures for fungi were acquired only at times of study. There was no alteration in bacterial flora that could be ascribed to corticosteroid therapy. Candida albicans was isolated from the sputa of 3 patients after and during treatment, but all subjects had received periodically wide-spectrum antibiotic medication. Candida albicans was isolated from the stools of 5 patients, and 2 of these had not received antibiotic therapy.

The urinalyses and serological tests for syphilis were respectively normal and negative in all subjects.

The L-E tests performed by the clot technique were negative. Specimens of skin and muscle were taken for biopsy from the left deltoid region and were normal except for 1 specimen that revealed muscle necrosis and regeneration and perivascular round cell cuffing. The patient from whom this particular specimen was taken had received 200 mg. of cortisol daily for 43 days just prior to the biopsy. The serum from this patient did not disclose a potassium alteration. Three and 6 months after the original biopsy and after cortisol had been reduced to 20 mg. twice daily, specimens for biopsy were normal.

There are not specific electrocardiographic changes in Chushing's and Addison's diseases. The changes that produce slowing of electrical conduction in Addison's disease and the quickening of it in some patients on large doses of corticosteroids are most likely metabolic in origin. In this series, only 1 patient had an abnormality that might have been attributed to corticosteroids, and that was a prolongation of the P-R interval to 0.28.

The electroencephalograms were normal with 2 exceptions. One patient, not an epileptic and also without a family background of epilepsy, had a tracing similar to the interseizure pattern of a person with grand mal. The other had a pattern that varied from absolute normal but one that is seen in about 10 per cent of patients without central nervous system disease.

ROENTGENOGRAMS of the upper gastrointestinal tract were normal; there was no evidence of ulceration or deformity. Analyses of fasting gastric contents revealed absence of free acid in 75 per cent of those treated 48 or more months; the average total acid in these same subjects was 10 ml. of 0.1 N HCl. The average age of this group was 50 years.

Roentgenograms of the skull, right wrist, lumbosacral vertebrae and pelvis were examined

separately by 3 roentgenologists. Osteoporosis was described in 3 subjects and was observed only in the lumbosacral vertebrae.

PULMONARY VENTILATION STUDIES BEFORE AND AFTER CORTICOSTEROID THERAPY

13 PATIENTS	% OF PREDICTED NORMAL	
	BEFORE TREATMENT MEAN	AFTER TREATMENT MEAN
VITAL CAPACITY (cc)		
BEFORE BRONCHODILATOR	85.0	85.7
AFTER BRONCHODILATOR	91.6	96.5
3 SECOND TIMED VITAL CAPACITY (cc)		
BEFORE BRONCHODILATOR	69.4	66.9
AFTER BRONCHODILATOR	71.6	79.1
MAXIMUM BREATHING CAPACITY (L./min.)		
BEFORE BRONCHODILATOR	40.0	48.9
AFTER BRONCHODILATOR	51.6	70.5

Table 5.

In table 5 are depicted pulmonary ventilation studies conducted on 13 patients before and after treatment. The only significant difference after corticosteroid therapy was in the degree of improvement of maximum breathing capacity (M.B.C.) after a bronchodilator drug. Before treatment, there was an increase in M.B.C. of 12 per cent compared to an increase of 22 per cent obtained after and during treatment.

An attempt was made to evaluate the status of the adrenal cortex by estimating the urinary 17-hydroxycorticosteroids and calculating the blood circulating eosinophiles immediately before and during stimulation with ACTH-gel. The day before, the day of and the day after multiple ACTH-gel administration, urine for 17-hydroxycorticosteroids,[3] blood for direct eosinophile calculation[4] and total cholesterol[5] were collected. The day of corticotrophin administration 80 units of ACTH-gel (same lot) were administered intramuscularly at 8:00 a.m. and 8:00 p.m. These same tests were conducted on a control group of 10 subjects who were similar to those of the treated series in all respects (type of disease, duration of disease, age and sex) except the designated control group had never before received corticotrophin and corticosteroids.

Table 6 depicts the 17-hydroxycorticosteroid response to exogenous ACTH-gel in our series after treatment for 55, 67, 79 and 91 months and a control group of 10 subjects. The urinary 17-hydroxycorticosteroids are reported in increments over control excretion. The control excretion was estimated in the 24 hour urine specimen collected the day before ACTH administration. The daily maintenance oral dose of corticosteroids was continued during the testing. The vertical bars represent the range of results. The left solid bar depicts the response of the control or untreated subjects. From left to right the variously dashed vertical bars record the response for the treated subjects after 55, 67, 79 and 91 months of daily corticosteroids on the day of and day after ACTH injection.

BLOOD FOR direct calculation of cirulating eosinophiles was drawn at 7:30 a.m. and 3:30 p.m. during the 3 days of the test; the response to ACTH was measured as per cent of fall. The estimation of ACTH effect on eosinophiles was conducted on the control group and on the treated subjects after a mean of 55 months of treatment. As illustrated in table 7, there was an 80 per cent fall in the control group at 3:30 p.m.

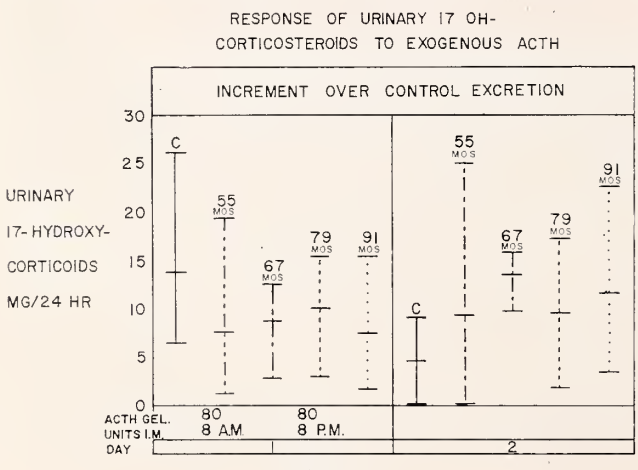


Table 6.

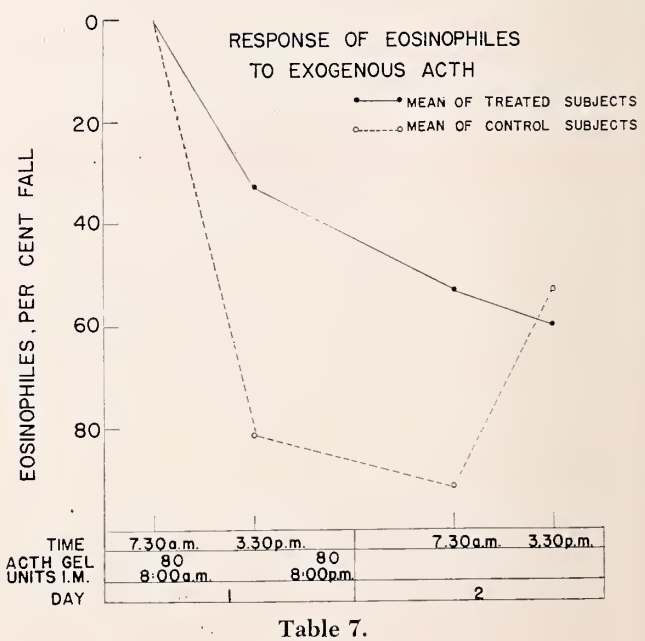


Table 7.

on the day of ACTH administration. The low eosinophile count continued thruout the night and returned to normal the next day. There was a delay in eosinopenia in the treated subjects, but a nearly 60 per cent fall occurred by 3:30 p.m. the day after the injections of ACTH. Eosinophile counts were made on 12 of the treated patients on the second day after ACTH administration, and in every subject the count, by this time, was returning to the level obtained prior to injections of ACTH. This indicated that the maximum eosinopenia in treated subjects occurred about 3:30 p.m. one day after ACTH administration and paralleled the delayed and maximum 17-hydroxycorticosteroid concentration in urine.

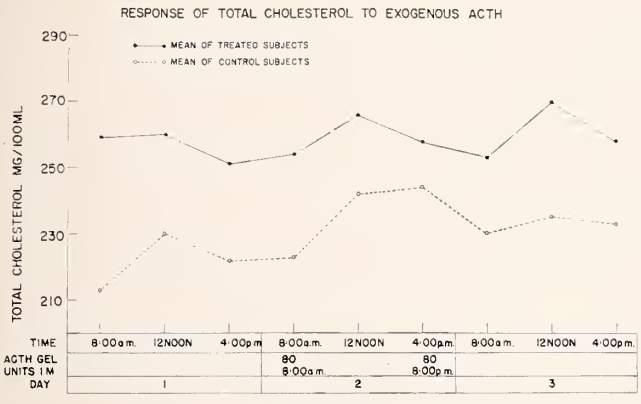


Table 8.

Table 8 depicts the effect of corticosteroids and the administration of ACTH on the mean total serum cholesterol levels of the treated subjects. The cholesterol levels of the untreated group and the effect of ACTH on these levels is depicted for comparison. There is a slight difference in the mean for the 2 groups, but the levels fall within the range of normal variation for our laboratory.

Comments

At the onset of this study 10 years ago when treatment for the majority of the subjects was started, all side effects attending the use of corticosteroids were not documented. Consequently, treatment was accompanied by a sense of cautiousness. When a patient with intractable asthma was selected for treatment, the previous medical regimen was continued; this usually included hyposensitization and bronchodilator, expectorant and antibiotic medication. Cortisone was added in doses of 50 mg. three times a day after meals and at bedtime for 2 to 3 days. The dose was then reduced to 25 mg. three times a day after meals and at bedtime every day until the patients became asymptomatic. Thereafter, the dose was gradually reduced every 6 days to the smallest one that maintained the asymptomatic or nearly asymptomatic state. This average daily maintenance dose was 55 mg. of cortisone or a clinically equivalent amount of either cortisol or prednisone. When corticosteroids were given twice daily, an equal amount was taken after breakfast and on retiring. When administered three times daily, equal amounts were taken after breakfast, after supper and on retiring. Most asthmatics are worse in the evening and night. The subjects in this series were no exception, and they seemed to profit most by having the total 24 hour dosage divided in the manner described. The diurnal secretory activity of the adrenal cortex had not been carefully elucidated when this study was started, and consequently, the advantages in preserving cortical activity by administering cortisone in a dosage no greater than 50 mg. at 8:00 a.m. were not appreciated. Subsequently, an effort was made in appropriate subjects to give the 24-hour dose at 8:00 a.m. instead of in divided doses at 8:00 a.m. and bedtime, but the symptoms at night remained uncontrolled, and the technique of dividing the dose had to be resumed.

During the study, the subjects were observed twice weekly then weekly in the Division of Allergy and Immunology, Scripps Clinic and Research Foundation. The evidence of improvement compared to the paucity of signs and symptoms of hypercortisonism was impressive and stimulated the first period of study at a time when the group had been treated for a mean of 55 months. Each patient was admitted to the Clinic's hospital service for 6 days of study and remained ambulatory or at bed rest depending upon the requirements of the laboratory tests. The vast majority of data reported here were collected at these times. Subsequently, at a mean duration of treatment of 67, 79, and 91 months, the patients were readmitted for adrenocortical function tests and any additional evaluation that seemed indicated by presenting symptoms and physical signs.

The mental symptoms of irritability and depression which are common in Cushing's syndrome and in subjects on large doses of corticosteroids occurred in only 3 patients. Two of these subjects were receiving an average of 75 mg. of cortisone daily, a dose 20 mg. larger

than the mean for the group. These same 2 subjects had an increase in body weight; obesity appeared in one other member of the series. Two patients complained of weakness; one patient had a rise of blood pressure; one developed hirsutism; an elderly subject displayed easy brusability; and another had ankle edema. One of the subjects who had received 200 mg. of cortisol daily for 43 days developed increased pigmentation and vitiligo which promptly disappeared after the daily dosage was reduced to 40 mg.

The symptoms and signs common to Cushing's and Addison's diseases were, therefore, not common in the patients of this series. Only 6 subjects presented from 1 to 3 of the manifestations of hypercortisonism. The mean dose of cortisone for these patients was 55.3 mg. which was similar to that of the entire group. However, the mean duration of treatment was longer in those who exhibited hypercortisonism.

EXAMINATION OF the laboratory data did not reveal consistently abnormal findings that are observed in Cushing's and Addison's diseases. Polycythemia never developed, and only 4 subjects had a direct eosinophile count below 100/mm.[3] One patient had a diabetic glucose tolerance test and 3 displayed osteoporosis. There was hypochlorhydria in 75 per cent of the patients treated 48 or more months; a finding more characteristic of Addison's than Cushing's disease. Roentgenograms of the upper and lower gastrointestinal tract were uniformly normal. The normal electrolyte pattern was not disturbed, and there was no indication of a trend toward a hypo- or hyperthyroid state. The mean serum total cholesterol was a little higher in the treated group than in the control group but was within the normal range of variation for our laboratory. Three patients did have a total cholesterol level above 320 mg. per cent which was considered elevated by our standards.

There was no significant change in bacterial and fungal flora of the respiratory and gastrointestinal tracts that might be attributed to corticosteroid therapy. Only one patient had an electrocardiographic change that might be ascribed to the metabolic effect of corticosteroids, and this was a prolongation of the P-R interval; there was no other apparent cause for delay in electrical conduction. Furthermore, the electroencephalogram of one subject was similar to the interseizure pattern of a patient with grand mal. Electroencephalographic changes developing during corticotrophin treatment have been described.[6] On the other hand, Friedman and Engel[7] stated that the electroencephalogram remained unchanged by cortisone and corticotrophin administration.

BECAUSE generalized lesions of periarteritis nodosa have been observed by Kemper, Baggenstoss and Slocumb[8] in 4 of 14 patients with chronic rheumatoid arthritis who had been treated with cortisone, specimens of skin and muscle were taken for biopsy from every subject in this series. All specimens were normal except for one and that revealed muscle necrosis and regeneration and a perivascular round cell cuffing. This patient had received 200 mg. of cortisol daily for 43 days; the serum potassium was not altered. Three and 6 months after the first biopsy and after reducing the dose of cortisol to 40 mg. daily, specimens for biopsy were negative. Ellis[9] observed identical changes in rabbits treated with 10 mg. of cortisone per kilogram per day. Identical changes have been observed in humans dying with a variety of infectious diseases,[10] dermatomyositis,[11] myasthemia gravis,[12] muscular dystrophy,[13] systemic lupus erythematosus[14] and in patients dying of typhoid fever.[15]

Interesting and significant information was gained by estimating the excretion of 17-hydroxycorticosteroids before and after ACTH-gel stimulation in the treated subjects and a selected control group. The adrenal cortex in the treated subjects was still quite responsive to corticotrophin. Though the response was sluggish when compared with the untreated group, it was clear that the gland was capable of synthesizing and excreting cortisol even though it took a few hours longer to approximate the quantitive response of the glands in those who were unexposed to corticosteroid therapy. Furthermore, the responsiveness of the adrenal cortex in the treated subjects was not appreciably altered over a course of 3 years of continuous treatment. One might assume from this data that the adrenal cortex is not progressively suppressed by maintenance therapy.

Finally, from pulmonary ventilation tests it was observed that a bronchodilator drug, as far as maximum breathing capacity was concerned, was more effective during than prior to corticosteroid therapy. The increase in responsiveness

of the bronchial tree musculature to a bronchodilator drug must be due to the anti-inflammatory effects of the corticosteroids. This observation is therapeutically significant; that is, the effect of ephedrine and epinephrine should be enhanced when administered concomitantly with a corticosteroid.

Summary

1. The findings in 25 cases of intractable asthma, collected from the Scripps Clinic and Research Foundation and treated for an average of 91 months with a daily average dose of 55 mg. of cortisone or a clinically equivalent amount of cortisol or prednisone, have been reported.

2. The 18 male subjects ranged in age from 23 to 73 years; the 7 females from 37 to 75 years. Every patient had chronic bronchial infection and 18 had chronic sinusitis. Fifteen subjects were considered to be allergic to inhalant antigens and were receiving hyposensitization treatment. All patients had received bronchodilator and expectorant drugs, and these medications were continued when corticosteroids were introduced. Wide spectrum antibiotics were employed periodically.

3. The symptoms and signs common in patients with Cushing's and Addison's diseases were not common in the cases in this series. Six patients presented from 1 to 3 of the manifestations of hypercortisonism.

4. Hematological data before and during treatment were not significantly different.

5. The determined values for chemical constitutents of the blood for electrolytes, urea, creatine, creatinine and fasting "true" glucose were normal. Three cases had a total cholesterol in excess of the normal upper limits in our laboratory. Thyroid function tests and electrophoretic patterns for serum proteins were normal. The glucose tolerance test was diabetic in type in one patient.

6. There was no alteration in the bacterial and fungal flora of the respiratory and gastrointestinal tracts.

7. Specimens of skin and muscle taken for biopsy were normal except one from a patient who had received 200 mg. of cortisol daily for 43 days. In this specimen there was muscle necrosis and perivascular round cell cuffing which disappeared after the dose of cortisol was reduced to 40 mg. daily.

8. The electrocardiogram revealed a prolonged P-R interval in one patient; the tracings were normal in the other subjects.

9. In one patient the electroencephalogram demonstrated a pattern similar to the interseizure pattern of grand mal; the tracings for the other subjects were normal.

10. Hypochlorhydria was observed in 75 per cent of the patients that were treated for 48 or more months.

11. Roentgenograms of the gastrointestinal tract were normal. Roentgenograms of the lumbosacral vertebrae, right wrist, skull and pelvis revealed osteoporosis in three patients and this was demonstrable only in the lumbosacral vertebrae.

12. The adrenocortical response to multiple ACTH-gel stimulation was delayed in the treated group and quantitatively inferior to the control group. The responsiveness in the treated cases was not altered during 3 years of continuous treatment.

13. From pulmonary ventilation tests it was observed that a bronchodilator drug was more effective during than prior to corticosteroid therapy. Accordingly, the effect of ephedrine and epinephrine on the musculature of the bronchi should be enhanced when administered concomitantly with one of the corticosteroids.

14. The patients in this series, who were incapacitated, have been able to resume a fairly active and productive life.

15. It is reasonable to conclude, after analyzing all facts elucidated by this investigation, that the benefits from the control of the disease, in this instance intractable asthma, outweigh the side effects from prolonged daily administration of small doses of corticosteroids.

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Original Articles

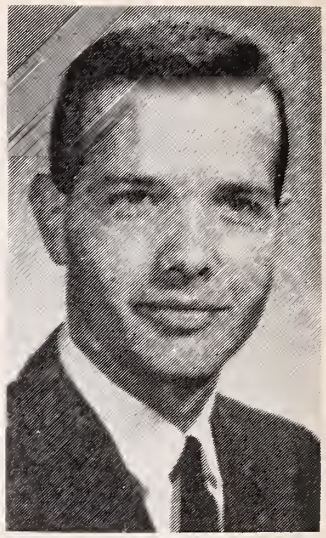
Heart Disease And Pregnancy Part II

"Risk and Management"

by
George C. Griffith, M.D.
and Richard P. Boggs, M.D.



Dr. Griffith



Dr. Boggs

Cardiac disease is complicated by pregnancy. However, the predictable circulatory burden of pregnancy can be reduced with an understanding of the patho-physiology.

IN THE NORMAL female patient, pregnancy imposes a significant and predictable circulatory burden. This increased load begins early in the first trimester, increases progressively throughout the second trimester, reaches its maximum between the seventh and eighth months, then slowly decreases up to the time of parturition. Transient load increases ocur during labor and in the immediate post-partum period which do not, however reach the high antepartum levels. A return to the normal non-pregnant state occurs usually by the second post-partum week.[1,2] A crucial question arises, as to the risks involved in the female patient with organic heart disease who becomes pregnant. Will their hearts' functional integrity deteriorate with the added burdens of pregnancy? In many clinics cardiac disease and its complications are among the leading causes of maternal death. How then should physicians advise patients with heart disease of the risks involved during pregnancy?

I. Incidence-Etiology

The incidence of heart disease in pregnancy varies because of the lack of uniformity in diagnostic criteria. It has ranged from a reported incidence of 2.3% at the Boston-Lying-in Hospital[3] to 3.23% and higher in the British Isles.[4,5]

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A. **Rheumatic Heart Disease:** That rheumatic heart disease is by far the most common type of heart disease in pregnant women is a familiar fact in this country and Great Britain.[3,4,5] Yet, Buemann in Denmark,[2] reporting on 184 patients, noted 44% had congenital heart disease and 48% acquired heart disease, primarily rheumatic heart disease. Table I shows 850 consecutive pregnant cardiac patients seen at the Boston-Lying-in Hospital as compared with 184 patients reported by Beumann. In the Boston group the miscellaneous cases included 17 individuals with various cardiovascular disorders rarely found in young women and 22 patients with gross enlargement of the heart and associated hypertension. In the majority of reports 85-95% of all pregnant women with cardiac disease have rheumatic heart disease with mitral stenosis being the principle valvular lesion. Table II and III show the distribution of valvular lesions in 500 consecutive cases reported by Sutherland.[4]

TABLE 1

	Total	%
Boston		
Rheumatic Heart Disease	781	91.9
Congenital Heart Disease	28	3.3
Cardiovascular Syphilis	2	
Miscellaneous	39	4.8
Denmark		
Congenital Heart Disease	81	44
Acquired Heart Disease	88	44
Miscellaneous	15	8

Table II
(Single Rheumatic Valvular Lesions — 394 cases)

	Total	%
Mitral Insufficiency	15	4
Mitral Stenosis	304	77
Mitral Stenosis and Insufficiency	53	13.4
Total	372	
Aortic Stenosis	2	
Aortic Insufficiency	14	
Aortic Stenosis and Insufficiency	6	
Total	22	

Table III
(Double Rheumatic Valvular Lesions — 71 cases)

	Total
Mitral Stenosis and Aortic Insufficiency	48
Mitral Stenosis and Aortic Stenosis	3
Mitral Insufficiency and Aortic Insufficiency	1
Mitral Stenosis and Aortic Stenosis and Insufficiency	5
Mitral Stenosis and Insufficiency and Aortic Stenosis and Insufficiency	9
Mitral Stenosis and Insufficiency and Aortic Insufficiency	5
Total	71

The prognosis of the pregnant cardiac patient with valvular disease varies with the location and severity of the lesion. It is believed that the mechanical block produced by mitral stenosis rather than left ventricular failure is the usual cause of pulmonary congestion.[6] Congestive heart failure, whether secondary to mechanical valvular obstruction or to ventricular decompensation, is the most common cause of maternal death. Atrial fibrillation is not often seen, but carries a grave prognosis as it indicates myocardial damage. Mortality in such cases is about 30%.[5] Mitral insufficiency is generally a benign lesion. The risks involved in aortic valve lesions are the same as in the non-pregnant individual. It is rare for acute rheumatic fever to occur during pregnancy.

B. **Congenital Heart Disease:** This forms the second largest group of cardiac lesions found in pregnancy. It is difficult to get a representative picture as rare and unusual cases with severe symptoms are more often reported in the literature than others. The reported incidence of congenital heart disease ranges from 0.2 to 19% of all pregnant cardiac patients[3-10] and has been reported to be as high as 44% in the Scandinavian countries.[2]

The lesions most often encountered were septal defects, patent ductus arteriosus, pulmonary stenosis and tetralogy of Steno-Fallot in that order. Abbott has divided congenital cardiac lesions into three main groups.[11]

a. Simple obstruction of blood flow in the great vessels. For example, pulmonary stenosis and coarctation of the aorta.

b. Aberrant channel between the heart chamber(s) or great vessels. For example, patent ductus arteriosus and septal defects.

c. Combined lesions. For example, tetralogy of Steno-Fallot and Eisenmengers Syndrome.

Normally, **Group** a has a good prognosis during pregnancy. There is some increased risk involved in patients with coarctation from myocardial failure, bacterial endocarditis and vascular accidents as dissection or rupture of an aneurism. **Group b** patients also do well at the usual age of pregnancy in spite of obvious physical signs, because the flow of blood is normally left-to-right. It should be remembered that the risk of bacterial endocarditis is always present in patients with patent ductus arteriosus. The prognosis is more guarded in patients in **Group c,** since reversal of the shunt usually has occurred. With the flow now right-to-left. This increases the hazard of myocardial failure. This is especially true during labor, if a fall in systemic arterial blood pressure occurs (hemorrhage or shock) which results in increased flow through the shunt and added demands upon a marginally compensated myocardium. As in **groups a and b,** bacterial endocarditis is a risk.

C. **Arrhythmias:** The arrhythmias, occurring in pregnancy, carry the same significance as in the non-pregnant state. As has already been mentioned, atrial fibrillation associated with mitral stenosis carries a grave prognosis. Heart block occurring during pregnancy is usually of the congenital type.

D. **Bacterial Endocarditis:** Some physicians believe that subacute bacterial endocarditis seems to be more common during pregnancy than in the non-pregnant female[12], and that childbirth may be the point of origin of the disease. Because of the risk of bacterial endocarditis in cases of valvular or congenital heart disease, many advocate the administration of penicillin during labor and the first few days of the puerperium. Penicillin is also recommended before and after dental procedures.

E. **Coronary Disease:** This occurs very rarely during the normal childbearing period.

F. **Hypertensive Cardiovascular Disease:** Myocardial failure secondary to hypertensive heart disease is rare during pregnancy.

II. Classification

There is a close correlation between the functional capacity (Amer. Heart Assoc. Classif.) of

a woman's heart before she becomes pregnant and her ability to tolerate pregnancy.

Class I. Patient with heart disease, but no limitation of activity or symptoms.

Class II. Patient with slight limitation of activity. Comfortable at rest, but ordinary activity causes symptoms.

Class III. Marked limitation of activity. Comfortable at rest, but less than ordinary activity causes symptoms.

Class IV. Unable to stand any activity. Symptoms at rest.

Jensen[13] in a statistical analysis of heart disease in pregnancy found the following per-cent mortality in the above classifications.

Class I.	0.39%
Class II.	0.43%
Class III.	5.30%
Class IV.	22.00%

Normally, classes I and II do well during pregnancy, if there are no other complicating features. Between 85-90% of pregnant cardiacs will fall in these two groups. As is expected, in classes III and IV the most serious complications arise.

A subclassification has been proposed by Hamilton and Thomson[14] as a guide to select those cases whose hearts are so badly damaged that they will not be able to carry on their work without failure under the load of pregnancy and delivery, even when given every known aid.

1. Cardiacs considered "unfavorable" for the risk of pregnancy.
 a. Cardiacs with previous history or signs of heart failure.
 b. Cardiacs with dangerous disorders of the heart beat such as atrial fibrillation.
 c. Cardiacs who have a complicating serious disease such as diabetes mellitus, chronic nephritis, etc.
2. Cardiacs who do not fullfill any of the above criteria are considered "favorable" risks of pregnancy.

The value of this subclassification is shown from the following statistics compiled on the basis of the first 750 cardiacs delivered at the Boston-Lying-in Hospital.

Maternal death rate for favorable cardiac	2.5%
Yearly death rate for favorable cardiac (age 20-40)	2.0%
Maternal death rate for unfavorable cardiacs	16.7%
Yearly death rate for unfavorable cardiacs (age 20-40)	6.7%
Maternal death rate for cardiacs with atrial fibrillation	33.3%
Yearly death rate for cardiacs with atrial fibrillation	7.9%
Death rate for all pregnant women	0.3-0.4%
Yearly death rate for all women of childbearing age	0.1%

These statistics may be used as a guide for instructing cardiacs in the risk of pregnancy. Among the favorable cardiacs, proper prenatal care almost eliminates the greatest danger of death, congestive failure. In spite of this, more die in pregnancy than in a year of ordinary living.

III. Age and Parity

It has often been stated that a patient with heart disease might have two or three pregnancies, but should not have more, since each pregnancy diminishes her cardiac reserve. Such a statement is not supported by available statistics. Whatever the risk of pregnancy, that risk is repeated with each pregnancy. There is no cumulative increase in risk with each pregnancy or special number of pregnancies after which the risk suddenly increases. However, it has been found that the incidence of congestive failure in pregnancy increases with age[2,5,14,15,16,17] and is greatest over age 35 years.[17] Correll, in an analysis of a number of cardiac patients during pregnancy, found the following incidence of congestive failure.

	% congestive failure
1. Patients less than 25 years age	11%
2. Patients 26-35 years of age	21%
3. Patients 36 years or older	36%

Also, if the cardiac status has changed from favorable to unfavorable or class I or II to class III or IV between pregnancies or during a pregnancy, the risk of death is much greater. It would seem wise, therefore, to advise female cardiacs to have their babies early in the childbearing period.

IV. Congestive Heart Failure

Fatalities among cardiacs at the Boston-Lying-in Hospital and in other published reports[2,4,5,13,14,16] show that congestive failure was either the only cause or a contributing cause in

principle causes of death include puerperal sepsis, pulmonary embolism, hemorrhage, toxemia of pregnancy, and bacterial endocarditis. In assessing a pregnant patient with heart disease, the crux of the problem is whether the damaged myocardium can tolerate the added burdens of pregnancy and delivery. A most important single observation is that heart failure seldom occurs for the first time at or following delivery. At the Boston Lying-in Hospital only four congestive failures in 500 consecutive cases of heart disease in pregnancy actually occurred for the first time during or after delivery. If patients have not had failure before term, the maternal mortality is low, slightly more than 2%. If the patient had failure before term and was cured of failure, the mortality is about 8%. If women are actually in congestive failure at the time of delivery, the maternal death rate is much higher, in the neighborhood of 45%.[14]

The evidence that emptying the uterus successfully does not lessen the load of pregnancy effectively and suddenly is supported by the very high death rate among women who are delivered while in congestive failure. It might seem reasonable that emptying a gravid uterus at or near term would immediately give great relief of the load on a failing heart. However, observation of many cases has shown that the patient in heart failure is usually in worse condition for days after delivery than she was before, even when delivery is precipitate or following easy operative delivery before labor has begun. Whether this is the result of (a) sudden occlusion of a vascular shunt in the uterus, (b) decrease in vital capacity, or (c) other factors which combine to impose a load on the heart after delivery is as yet undetermined.[5,6,14,16,18,19,20]

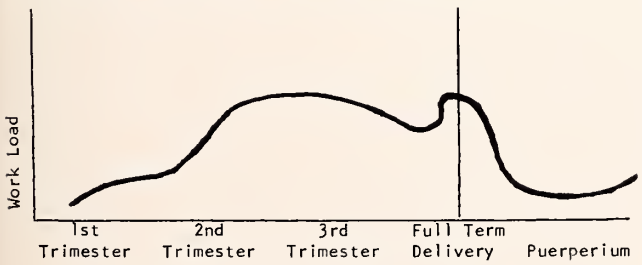


Figure 1. Load Curve in Pregnancy

That the load of pregnancy does not rise steadily until term, and that there is a lightening of the load during the last few weeks, is strongly suggested by all methods of observation. The extent of rise in load at the time of delivery is variable. However, the peak of the average load of pregnancy is higher than the peak of the load of usual labor, since cardiacs only rarely develop heart failure at delivery, if they have gone through a full pregnancy without failure.[1,5,6,10,14,16,18]

The above curve should be remembered in estimating and controlling a cardiac in pregnancy. It will explain the course of many cases which present features that otherwise would be puzzling. A consideration of the load curve leads to the following conclusions.

1. A history of marked limitation of activity or congestive heart failure prior to pregnancy suggests that the burden of pregnancy will be poorly tolerated.
2. The earlier the failure occurs in pregnancy, the more ominous the finding.
3. Special care for a pregnant cardiac is even more necessary in the period from the sixth to eighth months than in the last month.
4. If a cardiac fails during the sixth, seventh or eighth months, why should the pregnancy be interrupted? It will not immediately improve the failure. It imposes additional strain when there is a burden already. This burden will lighten normally toward term.
5. In the few cases that do develop failure for the first time close to or at term, one should search for other causes, such as disorders of the heart beat, intercurrent infections, fatigue, weight gain, anemia, metabolic causes such as hyperthyroidism etc.

The treatment of congestive failure in pregnancy is essentially the same as the treatment of heart failure in any other situation. Three weeks is thought to be the minimum period for rest in bed after all signs of failure have cleared. Once heart failure develops during pregnancy, the patient should be kept in a hospital or under hospital conditions until delivered. Heart failure may reappear promptly if patients are allowed up a few days after recovery or are allowed to resume the conditions under which it appeared.[1,2,5,6,14,16,21,22]

V. Indications for Advising Against Pregnancy and for Therapeutic Abortion Because of Heart Disease

This topic is frequently the subject of much controversy. The problem involves (1) ethical and religious conventions, (2) local and temporary interpretation or enforcement of governmental laws, (3) vital statistics of maternal and

over two-thirds of the cases. Other less common fetal death rates. If pregnancy entails extraordinary risk of life, it seems just that, within the law, decision for attempting or continuing a pregnancy should rest with the patient. The physician's function should be to give the patient advice and information on vital statistics.

If a cardiac knows her risk and chooses to become pregnant, indications for therapeutic abortion seldom appear during pregnancy. Approximately 18% change their status from favorable to unfavorable during pregnancy by developing congestive failure or atrial fibrillation for the first time. If the patient has been reasonably well controlled, such a change in status rarely appears before the sixth month, when the load begins to rise. At this time interruption of pregnancy, because of heart failure, is seldom indicated. Delivery by any method in the presence of heart failure is dangerous.

The few that do fail or develop atrial fibrillation for the first time early in pregnancy before the load is heavy, do so nearly always as the result of some extraordinary coincident factor, as previously mentioned. By guarding against repetition of these factors causing failure, the patient still has a good chance of successfully bearing the load of pregnancy.

With ideal care and cooperation before and during pregnancy, do indications for therapeutic abortion for purely cardiac reasons ever appear? Therapeutic abortion is rarely needed since the advent of optimum medical management and cardiac surgery. Acute rheumatic fever with carditis rarely occurs at the onset of pregnancy. In active rheumatic heart disease, the immediate risk for the mother is great, if pregnancy is allowed to continue. If therapeutic abortion is performed, health might be regained and future pregnancies attempted with greatly reduced risk.

Finally, it is possible to distinguish a group of cardiacs who have a risk so high that in only the rarest instances both mother and child may be discharged alive, i.e. women who fail when under reasonable control, early in pregnancy, without unusual, removable, exciting causes other than pregnancy or who have valvular lesions deemed inoperable with failure in early pregnancy. The load of pregnancy has not yet become heavy and, when it does, failure is certain and death more than probable. Under such circumstances one cannot justify refusal to interfere with the pregnancy. Interruption should be done before the 15th week by the vaginal route, and not after the 20th week. After this date it is the sum of clinical experience that the risk of interruption (hysterotomy) is probably greater than that of allowing pregnancy to continue.[3,4,6,16,23]

VI. Cardiac Surgery During Pregnancy

There are a limited number of congenital heart lesions amenable to surgical correction during pregnancy. Valvulotomy has been done in early and midpregnancy. Some physicians believe cardiac surgery in pregnancy is necessary only very rarely and for specific reasons.[1] The question arises as to whether such operations in fact alter the risk during pregnancy. There are those who contend that there is no increased risk for mitral valvulotomy in pregnancy, and further, that no increased incidence of prematurity exists secondary to cardiac surgery.[24] If deemed necessary, cardiac surgery should probably be done before 28 weeks gestation prior to the beginning of the peak load.[25] One must remember in evaluating a patient for surgery that the maternal mortality rate is low in pregnancy except in Classes III and IV and that the operative mortality for valvulotomy is about 5%. In general, results are better if operative heart repair is performed when the patient is not pregnant.[5]

VII. Management of the Pregnant Cardiac Patient

The proper management of women with heart disease is dependent upon a rational understanding of the "load curve" in pregnancy.

1. The favorable cardiacs, who present no complications, are allowed to continue their pregnancies under strict medical supervision by the cardiologist and obstetrician. Spontaneous onset of labor is permitted and the patient allowed to complete the first stage in a normal manner. When consistent with safe delivery, a prolonged second stage of labor is eliminated through routine use of low forceps. Abdominal hysterotomy near term is used only when there is a strict obstetric situation that would necessitate such a procedure for a woman with a normal heart.

2. Eighteen per-cent of the favorable cases develop complications for the first time during pregnancy that are primarily cardiac, i.e. congestive failure, atrial fibrillation, and thereby

become unfavorable cardiacs. The policy for such a case depends on the gestational age of the pregnancy.

a. If a favorable cardiac develops congestive failure before the fifth month, she still must face the greatest part of the load of pregnancy. Except in rare cases where heart failure has occurred from some extraordinary strain that may be permanently prevented, it is unreasonable to expect the patient to tolerate this greater load, if she has already failed while trying to sustain the lesser part of the pregnancy load. In general, the policy is (1) immediate hospitalization and treatment for heart failure, (2) interruption of pregnancy, preferably by vaginal delivery when the patient is in the best possible condition. At the same time the patient is sterilized, unless as in rare exceptions, it is thought that the causes of the cardiac complications may be prevented in a future pregnancy. If the patient is Class III or IV at any time, sterilization is routinely advised after the first successful pregnancy, if this is feasible.

b. In contrast, if the cardiac complications that make the patient unfavorable appear for the first time after the fifth month of pregnancy, or if, though they have appeared before this time, one is unable to improve the patient's condition sufficiently to warrant the strain of interruption before the sixth month, it is likely that the heavy part of the load of pregnancy is already upon the patient. In this situation the policy is to withhold interruption of pregnancy and to wait for spontaneous labor, unless some obstetrical or other indication unrelated to the heart appears. Whether or not one succeeds in restoring the heart's compensation, it is believed that adding the load of even the easiest type of delivery to the heavy portion of the load of pregnancy is poor policy for a cardiac. It should also be remembered that the load of pregnancy will lighten toward term and that the patient may improve spontaneously and dramatically.

c. The same general principles determine the obstetrical care of patients, who, when they begin pregnancy, are already unfavorable cardiacs. If they are seen in the early months, pregnancy is interrupted by vaginal delivery and the patient is sterilized when the cardiac status is optimal. Vaginal delivery is the route of choice in most published reports. Hysterotomy is resorted to only in rare instances for purely obstetric reasons.[2,4,5,,16,23] If the unfavorable patient refuses interruption or reports after the fifth month of pregnancy, interruption is withheld and she is cared for until the onset of labor.

d. The general principles for management of cardiacs during pregnancy are obvious and include rest, restriction of activity, control of obesity, prompt correction of anemia, prompt and effective treatment of all infections, especially upper respiratory tract infections. The frequency with which acute pulmonary edema is preceded by an upper respiratory infection is impressive. Other measures include digitalization, salt restriction, diuretics as needed, control of arrhythmias and avoidance of unnecessary intravenous infusions. During labor the basis of management is close supervision and adequate sedation in the first stage, low forceps delivery early in the second stage, careful observation in the third stage for the most dangerous complication of this period postpartum hemorrhage.

The value of these policies in the obstetrical care of cardiac patients is reflected in the statistical analysis of two groups of patients treated at the Boston-Lying in Hospital. During the period of the first group (group A, 500 cases) it was believed advisable in patients with severe heart disease to avoid the possible damaging effects of labor. Also, it was erroneously thought that the load of pregnancy progressively increased till term and thus early interference was jected to abdominal delivery. The death rate in this group was 12%. Moreover, three-quarters of these deaths resulted from the heart failure that was supposed to indicate the radical measures. indicated. In the first group of 500 cases, the 100 most serious cases were subjected to abdominal delivery. The death rate in this group was 12%. Moreover, three-quarters of these deaths resulted from the heart failure that was supposed to indicate the radical measures. During the period of the second group (group B, 394 cases) the policies as described were followed with significant improvement in comparative mortalities.[14]

	Group A	Group B
Total Maternal Mortality	6.5%	2.6%
Died Undelivered	8	0
Total Laparotomies	101	79
Total Fatalities (Abdominal) ...	12%	5%
Total Pelvic Deliveries	391	315
Total Pelvic Fatalities	28%	0.9%
Deaths in Heart Failure	8	1

VIII. Fetal Morbidity and Mortality Among Cardiac Patients

The intelligent cardiac, who decides for or against attempting pregnancy on the basis of her chances for success versus her risk, must also realize her chances for having a live baby. In general, the poorer the cardiac condition of the mother, the less the chance for a living baby, as well as the greater the maternal risk. It has been remarked that babies prematurely born of cardiac mothers fail to survive more often than babies prematurely born of mothers who are not cardiacs. Various explanations have been offered, such as the observation that carefully guarded cardiacs tend to have larger babies, and therefore the actual degree of prematurity may be underestimated, if age is determined by birth weight. Another explanation, suggested by Clifford, is that sedation, particularly morphine, has been used more freely for cardiacs before delivery than for those who are not cardiac patients.[26]

Wooley and co-workers[27] in their study noted that in women with congenital heart disease, 68% had normal children. The incidence of congenital defects was 1.8%, which is six times the normal incidence. They further noted that there was a high incidence of spontaneous abortions in women with cyanotic congenital heart disease. Bueman,[28] reporting 202 infants born to 184 mothers with congenital heart disease, noted the following:

1. Stillbirth Rate 3%
2. Mortality Among Mature Infants 2%
3. Total Infant Mortality Rate..... 8%
4. Total Incidence Prematurity 17%
5. Asphyxia Neonatorium 4%
6. Congenital Malformations 3%

However, in general, the facts do not seem to justify any mystery about babies born of cardiac mothers. If they are born after the 35th week, their chance for survival is as good as for the average baby. If born before that, their chances are diminished just as they would be, if their mothers were not cardiacs. Since the reason for premature delivery is usually prolonged congestive failure of the mother, which implies prolonged impairment of the fetal as well as maternal circulation, it seems reasonable to explain the fetal mortality statistics on this basis.[14,29]

Cardiacs may frequently ask what is the chance of their having a child born with a defective heart or a child that will later develop heart disease. From available information there is no reason to support such a fear, if a cardiac mother goes through pregnancy without prolonged congestive failure and is delivered at term. Rheumatic fever is known to have a tendency to recur in families. Various observers offer various statistics, however, the chance that the child of a mother with rheumatic heart disease will develop rheumatic heart disease is not known.

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A Re-evaluation of the Problem of Torsion of the Testicle

by
Hugh B. Lynn, M.D.

An excellent review of the problem of torsion of the testicle in children and the plea for early surgical exploration and preservation of the testicle.

THE Problem of torsion of the testicle has, in my opinion, been the subject of entirely too much agreement. This entity does not always fit the clear-cut clinical picture which we have been painting for medical students and house officers. In fact, the "typical" case is beginning to appear, at least to me, to be atypical.

When an adolescent awakens from sleep with severe pain in the testicle which gradually extends to the cord structures in the inguinal canal or complains of such a pain after some form of strenuous exercise, the possibility of torsion of the testicle is usually considered. If the pain is excruciating, causing nausea and possibly vomiting, and is not relieved or is actually made worse by elevation of the scrotum, the diagnosis has usually been thought to be self evident.

Once the probable diagnosis has been made, it has become traditional to count the hours from the onset of symptoms to the time of examination. Then, depending upon whether the examining physician is a 6, 9, or 12-hour man, he jumps into what he is convinced is the only logical course of action. Six, 9, or 12 hours are the figures usually selected as the limits of retrievable viability of a testicle which has undergone torsion. Naturally these times may be modified by the physical findings. Experiments in dogs have suggested that gangrene takes place within 48 hours in cases of unrelieved torsion. Perhaps these limited and not wholly applicable studies are responsible for the confidence exhibited by many physicians when confronted by such a diagnostic problem after more than 2 days have elapsed. There is a certain philosophic resignation in the tone of the physician as he concedes that a case is not typical of epididymo-orchitis but that, if torsion of the testicle is present, it is already too late. This seems to justify his inertia and fuzzy thinking but does nothing for the patient or his testicle.

In the event that the patient falls into the hands of a surgeon within one of the accepted time limits, he may then be whisked to the operating room where the testicle is untwisted and observed for a short period in a warm saline pack. If the appearance of the testicle does not then satisfy the surgeon, the organ is often excised. Preparatory to removal, a biopsy may be taken in an attempt to confirm the clinical impression of true necrosis.

In recent years it has become popular to dispose of one testicle and then turn attention to the opposite gonad in an effort to ensure against future torsion. There are many proponents of

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such a practice, and various surgical "tacking" or "fixation" procedures have been described and advocated.

OVER the years I have been impressed with the many variations and the limitless combinations of symptoms, physical findings, and circumstances that the patient may present. Naturally I am speaking from a limited viewpoint since my attentions have been devoted exclusively to infants and children for more than 15 years. This problem has made sufficient inroads on my conscience so that I invariably think of torsion of the testicle and marvel at the wonders of nature's mechanisms every time I handle a testicle during a herniorrhaphy or an orchidopexy. Furthermore, I am sufficiently motivated to amputate any appendix testis encountered during such operations, and even more important I invariably make note of it in the operative dictation. This has been more of a comfort to me than an aid to my patients since the differential diagnostic consideration of torsion of the testicle has been exceedingly rare in postoperative herniorrhaphies and just as rare in my own series of orchidopexies. However, this step does eliminate the possibility of torsion of the appendix testis, and I have reliable information of more than one case in which this differential was fairly confidently made incorrectly and surgery was withheld until the situation was hopeless.

Illustrative Case

More than a year ago, a 13-year-old boy was referred to the Mayo Clinic with a confusing clinical picture. He had sought the advice of his family physician because of vague but progressive abdominal pain. The pain was of 3 days' duration and became localized on the third day to the left lower abdominal quadrant. Twenty-four hours after the onset of this pain there had been a 20-minute episode of truly severe discomfort; the following day he had vomited one time and felt listless, but the temperature was not elevated. When examined by his own doctor, he was found to have swelling of the left scrotum.

Initial examination at our hospital was remarkably unimpressive except for the swelling and edema of the left scrotum. The temperature was 101° F. by mouth. Abdominal palpatation produced guarding, tensing of the musculature, and mild protestations most marked when the pressure was applied over the left lower guadrant and slightly less severe when applied directly over the upper part of the scrotum. Although the patient admitted to little or no pain in the scrotum, moderate tenderness was present on compression of this structure, and the left scrotum appeared approximately three times normal size. There was very little evidence of redness in this area. Elevation of the swollen scrotum failed to relieve the abdominal pain (positive Prehn's sign). Rectal examination was not remarkable. An admission diagnosis of epididymo-orchitis was considered most likely, but torsion of the testicle could not be dismissed. The patient was examined by many physicians. All the usual platitudes of differential diagnosis were mentioned, and many of them were recorded. It was my conviction, however, that a diagnostic exploration of the scrotum was the safest plan for preservation of the patient's testicle.

At operation, the edematous scrotum was more than 2 cm. in thickness. The tunica vaginalis was blue and tense, and it contained 15 ml. of clear, pale, yellow fluid under great pressure. The testis was dark in appearance with a blue mottling while the appendix testis and epididymis seemed gangrenous and almost blue-black in color. The cord was twisted one complete turn within the tunica and appeared inflamed, but the reduction was a simple matter. No purulent or cloudy fluid was encountered. After 20 minutes of packing in warm saline sponges, there was slight but quite definite improvement in the appearance of the testicle and epididymis. The appendix testis was amputated. The thickened tunica was widely opened and partially excised, and the testicle was returned to its bed. The wound was closed loosely with fine chrome gut sutures without drains.

Penicillin and streptomycin had been administered preoperatively, and their use was continued postoperatively. The patient was dismissed from the hospital on the sixth day after operation.

Follow-up evaluation 9 months later showed what was interpreted to be partial atrophy of the left testicle by comparison with the right, although it must be recalled that the tunica vaginalis had been widely excised at the time of operation.

Comment

This is not an isolated case in my experience by any means; it does illustrate many controversial points.

Although torsion of the testicle is a condition commonly found in adolescents and young adults, it may occur at any age and has been reported to occur in newborns. Review of the cases of the Mayo Clinic for a 25-year period (1935 to 1960) showed that the age distribution ranged from 19 days to 63 years. In view of this range, torsion of the testicle is a diagnosis which cannot be excluded in any patient merely because of his extreme youth or advanced age. In fact, it is more likely that epididymitis could be almost excluded in boys who have not yet attained puberty.

It has been pointed out by many observers that there are several forms of torsion of the testicle. In the intravaginal type of torsion the free attachment of the testicle within the capacious tunica vaginalis permits too free movement and may lead to twisting sufficient to compromise the blood supply. Even in my practice this

has been the more common form. In extravaginal torsion, the cord twists above the level of the fusion of the tunica vaginalis to the cord. This is more commonly encountered in infants and very young children, and possibly it is due to the relative freedom of the testicle and its sheath within the scrotum and canal.

Other forms of torsion include a twisting between the testicle and its epididymis, or torsion of the undescended testicle lying loosely in the canal. Torsion of the intra-abdominal testicle has been described, but I have had no experience with or personal knowledge of such cases.

Some form of vague abdominal pain as the initial symptom of torsion of the testicle is apparently not rare. I have encountered it on several occasions, as have many of my colleagues. Review of the Mayo Clinic series for a 25-year period showed that nine of 41 cases (22 per cent) began in this manner. Whether this is a reflex type of pain due to partial circulatory embarrassment or is caused by stretching of nerve fibers is beyond my knowledge. The fact that it can and does occur is the important point. It seems possible, in view of this gradual onset, that the charge of Wheeler and Clark[1] that 75 per cent of the cases in the literature (reviewed by Riba and Schmidlapp)[2] were "lost because of indifference on the part of the physician" may be too harsh.

OF COURSE, in dealing with pre-adolescent and adolescent boys we must recognize that many additional factors may befog the picture. The pain may reach great severity before an embarrassed and self-conscious boy will admit to either its presence or its true location. In the presence of some feelings of guilt, the true picture may be further masked by aspirin or other household remedies that were taken by the child or administered by a parent for alleged headache or vague abdominal pain. However, this would not account ofr the abdominal pain experienced by older men, who would usually be free of such inhibitions.

In spite of the awareness that abdominal pain may herald torsion of the testicle, physical examination must provide evidence that the testicle is involved before any surgical relief can be undertaken. Early suspicion and careful examination are implements which will lead to prompter relief through operation.

The duration of symptoms poses the greatest obstacle, because of our deference to tradition. Surgery and anesthesiology have made too much progress in recent years to justify the all too prevalent attitude of avoiding the knife whenever possible. Although unnecessary operations are to be deplored, the possible salvage of a testicle would seem to justify prompt exploration in a case in which there is any doubt. The duration of the symptoms may well indicate a lost gonad; however, the degree of torsion, and thereby the extent of compromise of venous return (early) and arterial occlusion (later), is a variable which cannot be accurately diagnosed, even under ideal conditions, by the magnitude of the patient's protestations.

A verifying operative procedure does not come under my classification of unnecessary surgery. In the event that no torsion is found, little or no harm will have been done. Preoperative administration of broad-spectrum antibiotics in questionable cases may be desirable. In the case presented, this therapy seemed wise to us since there was a likelihood of encountering some infection. I realize that this remains a controversial point.

In the event that torsion is encountered, it is usually a simple matter to relieve it. Packing of the testicle in warm saline after the tension has been relieved may produce dramatic changes as the venous congestion subsides. It is recognized that the tubular elements of a testicle suffer early from ischemia and show less recuperative powers than do the interstitial elements. Possibly even a very brief episode of compromised blood supply will result in a loss of spermatogenesis, but the other functions of the gonad may survive. In any event, a questionably viable testicle is one for which there is hope, and it must be preserved.

THERE IS LITTLE argument that a testicle which shows obvious necrosis on biopsy will be of limited value. However, it is never absolutely certain that the entire testicle will atrophy and leave a completely empty scrotum. Speaking in behalf of the younger age group

(less than 16 years) at least, I would suggest that the presence of even a partially atrophic gonad is very comforting and that every effort should be made to preserve it. I have never removed a testicle because of torsion and necrosis, nor have I ever regretted not doing so. I have had cases in which it seemed wise to place rubber slip drains for a few days, and I have had several cases in which complete atrophy and disappearance occurred in the early months after operation. In none of these cases did the families show the dissatisfaction or doubts that I have encountered in one case in which the gonad was removed elsewhere.

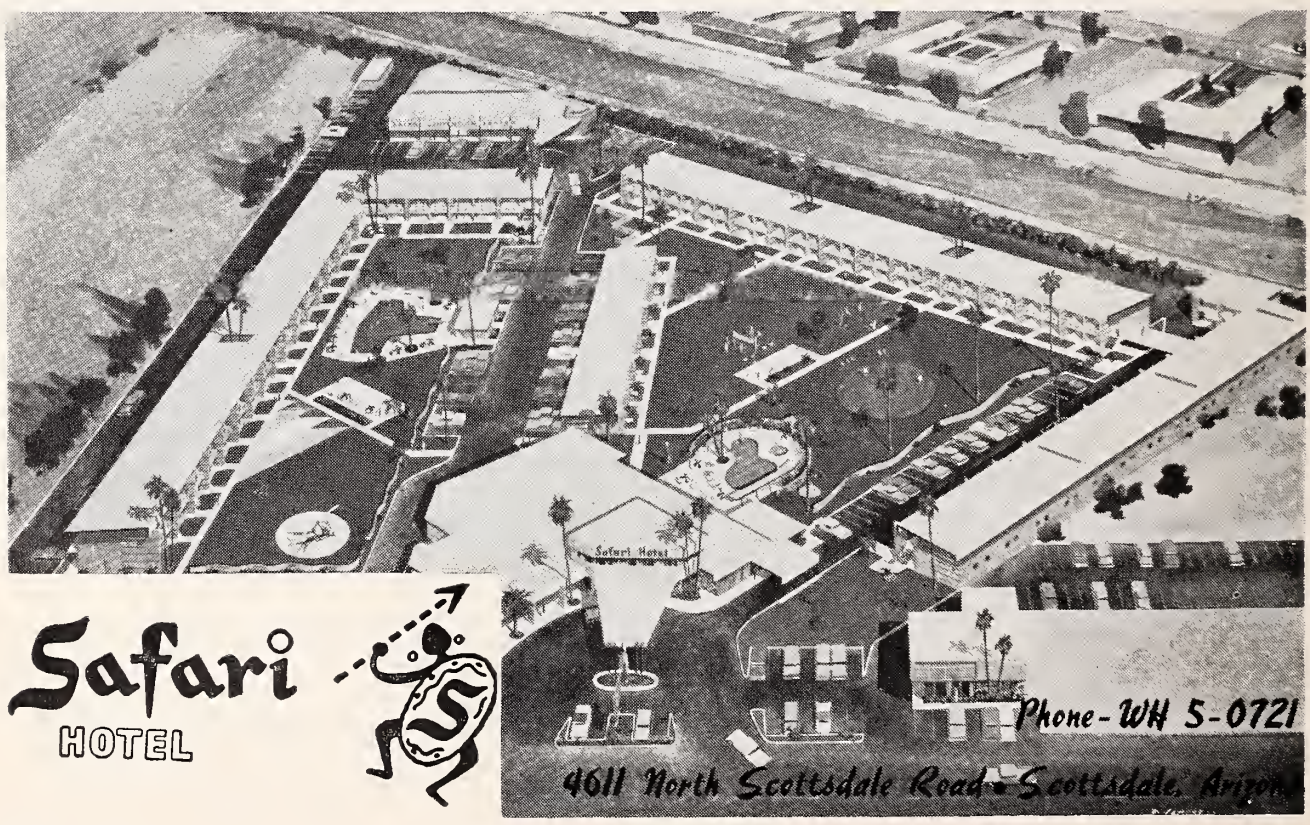
In spite of awareness of the possibility of an insidious onset with all its implications, I am not yet willing to accept the thesis of prophylactic fixation of the uninvolved gonad. I know of only one case in which this "tacking" procedure has ended in atrophy (complete) of the uninvolved testicle, but certainly no one is writing on this complication of preventive surgery. The danger of contamination of a clean compartment, the possibility of damage to normal structures, and the prolongation of the operative procedure have seemed to me to outweigh the hazard that torsion of the second side may progress to a point of no recovery in a patient who has been educated through his previous experience and warned of this possibility.

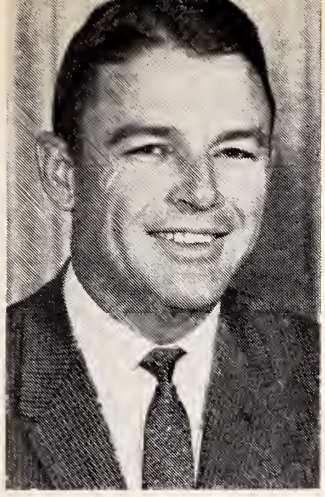
Summary

A case of torsion of the testicle heralded by 3 days of abdominal pain is presented. Attention is directed to the frequency of insidious onset and unusual symptoms of abdominal pain and tenderness. Even when the symptoms have been of long duration, exploration is urged in hope of salvaging some testicular tissue. A plea is made for the retention of all testicles in spite of evidence of vascular damage. The author's personal doubts of the validity of prophylactic fixation of the unaffected testicle are expressed.

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2. Riba, L. W., and Schmidlapp, C. J. Torsion of the Spermatic Cord. Surg., Gynec. & Obst. 83:163-170, Aug., 1946.





Dr. Pollock

INTESTINAL OBSTRUCTION IN THE NEWBORN

by

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This is a very informative and practical discussion on intestinal obstruction in the newborn that will be welcomed by the pediatrician, the general practitioner and the pediatric surgeon.

THE MOST IMPORTANT step in the prompt diagnosis of intestinal obstruction in the newborn is to suspect it at the first sign of trouble. About one-fourth of the newborn infants with intestinal obstruction will be born of mothers who have had some degree of hydramnios. Any pregnancy complicated by hydramnios should make the attending physician suspicious of intestinal obstruction in the infant. It has even been suggested that all infants born of hydramniotic mothers should have a catheter passed into the stomach as part of the routine newborn examination. If the catheter will not pass to the stomach, atresia of the esophagus should be the first diagnosis. If the catheter does enter the stomach, and the volume of fluid aspirated is over 50 cc., there is a real possibility of intestinal obstruction. The normal infant should have less than 35 cc. of fluid in the stomach at birth.

Appropriate x-rays of the intestinal gas pattern should be taken when obstruction is suspected. Air swallowed by the baby will appear in the colon within 8 hours after birth and should have progressed to the anus by the 24th hour. Mucoviscidosis is a direct consequence of fibrocystic disease of the pancreas. In infants with this anomaly, the viscid meconium may delay or obstruct the passage of gas, even though the lumen is patent. The x-ray appearance of meconium ileus is typical.

In almost all forms of newborn intestinal obstruction the diagnosis can be made on simple x-ray films taken to show the gas pattern, or with the use of a small nasal tube. It is not usually necessary to use contrast media, and fluoroscopy and manipulation can be hazardous, especially for small and weak babies.

One easy way to review the forms of obstruction is by taking them in order as one progresses down the intestinal tract. The highest level of "intestinal obstruction" is not an obstruction of the food passages, but of the airway: posterior choanal atresia. When the posterior choanae are imperforate, due to persistence of the membranous diaphragm there, the infant cannot breath through the nose while sucking on a nipple. Consequently, the baby becomes cyanotic when the mouth is obstructed by attempts at feeding, but can breathe adequately with the mouth open. This is a rare form of interference with feeding, but it can be confusing. The condition is treated by opening the diaphragmatic septa and inserting polyethylene tubes to retain the patency of the choanae dur-

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ing the healing process. Opening the nasal airway relieves the "obstructive" situation promptly. The child can then suck normally while breathing through the nose. Eye dropper or tube feedings are adequate temporary feeding maneuvers until definitive surgery is feasible.

Esophageal Atresia

These infants often excite the suspicion that they are obstructed because they have excessive amounts of mucus in the mouth and throat. Attempts at feeding will produce some choking and interference with respiration, as the formula fills the blind-ended proximal pouch and then spills over into the trachea and bronchi. It is common practice in many newborn nurseries not to feed the infant until the end of the first day, so that the first overt indication of difficulty may be a little delayed. The earliest we have seen this condition diagnosed was within an hour of birth, when an attempt to pass a catheter to the stomach was unsuccessful in an infant born of a hydramniotic mother. The latest we have seen the disease diagnosed was at the age of 9 days. It may seem surprising that this condition can remain undiagnosed for so long, in spite of the inability of the infant to swallow anything. Before the anomaly can be diagnosed, one has to suspect its presence.

The commonest form of esophageal atresia is the one in which the proximal pouch ends blindly at about the level of the 4th dorsal vertebra and the distal esophageal segment connects to the posterior wall of the trachea as a tracheoesophageal fistula, (Type III). It is this fistula which leads to the apparently normal gas pattern on radiographs of the intestinal tract. The other forms of esophageal anomalies are the ones in which (1) both the proximal and distal segments end blindly, in which case there will be no fistula to the respiratory tree and no gas in the intestinal tract. A child with this form of the anomaly can have a feeding gastrostomy set up immediately without fear of flooding the lungs. Less common forms are those in which (2) the proximal pouch enters the trachea, (3) or both pouches do, (4) or the even more uncommon form in which the esophagus is patent for its entire extent but there is a fistula between the esophagus and the trachea. This "H" form of the fistula usually occurs in the neck or at the mediastinal inlet; the fistulae can be multiple and in any case they are very difficult to demonstrate. Sometimes the fistula(e) can be seen on contrast media studies of the esophagus, sometimes on bronchoscopy or tracheoscopy. Sometimes it has been impossible to demonstrate the fistula prior to the child's death from the constant pulmonary infection, secondary to the soiling from the intestinal tract.

There are three problems to be solved in correcting the common form of esophageal atresia: one must 1) provide for drainage of the proximal pouch, 2) close the fistula from the distal esophagus to the trachea, and 3) provide for nutrition.

PRIOR to 1940 these objectives were imperfectly achieved by cervical esophagostomy, division of the distal esophagus and establishment of some form of gastrostomy. This left unsolved the ultimate problem of restoring continuity by interposing segments of small bowel, stomach or colon as an artificial esophagus. These techniques are still occasionally useful for certain complicated or technically difficult cases.

A cervical esophagostomy can be successfully connected to a bowel segment interposed in a channel beneath the skin, or within the chest (either in the anterior or the posterior mediastinum). Most of the efforts to interpose small bowel segments as high as the level of the clavicle have been unsuccessful. There has been some discussion of whether a cervical esophagostomy should be brought out on the left side or the right. The esophagus in its upper cervical course is approached easier from the left, but as it enters the superior mediastinum it courses more to the right and there are those who believe that the esophagostomy will be longer and lower if it is placed on the right. Needless to say, any fistula from the distal esophagus to the trachea must be closed before a gastrostomy can be used for feeding.

For over 20 years it has been standard practice to attack the anatomic lesion directly, with the aim of closing the fistula and re-establishing continuity by direct end-to-end anastomosis of the esophagus. In recent years, most surgeons working with this anomaly have used the right transpleural approach, if the heart and great vessels are normally placed. If the heart or the aortic arch is in the right chest, the left approach may be the better. The advantages over

the mediastinal or "extrapleural" approach are: a) that the operating time is shortened by about an hour, b) the exposure is better, c) it requires no rib resection with the consequent chest and spine deformity as the child grows up and d) it makes it possible to mobilize the upper and lower segments better. However, if an anastomotic leak occurs postoperatively, the resulting empyema is not nearly as well tolerated by the infant as is simple drainage to the exterior with an intact pleura. The disadvantage of the "extrapleural" route, in addition to the greater time and more tedious dissection required, is the extreme difficulty of staying entirely outside the pleura in tiny infants. In about half of the cases some opening will be made in the pleura. The pleura in this approach is so delicate that it is virtually impossible to close it by simple suture. We have used the technique of grasping the free edges of the opening with clamps, bringing the tips of the clamps together and tying them together as one would a blood vessel. This can be quickly done without widening or extending the pleural rent. It is necessary to remove segments of from one to three ribs, with their intercostal bundles, to get adequate exposure through the extrapleural route.

WE prefer to enter the chest through the right third or fourth space, spring the ribs apart with a Tuffier retractor, and retract the lung forward to expose the hilum and the azygos vein which courses over the right main bronchus at this point. The mediastinal pleura is incised and the vein elevated and divided. This will reveal the distal esophageal segment entering the posterior wall of the trachea at the carina or at the right main bronchus. It is rare for the fistula to connect to the left bronchus, when the heart and great vessels are normally placed, but it does occur and in this situation can be difficult to expose and divide.

It is helpful to have the anesthetist pass a catheter into the proximal pouch to assist in identifying and in mobilizing it. The proximal pouch is relatively thick walled and of larger size than the distal segment. It is advantageous to connect the proximal and distal segments with some seromuscular sutures before the fistulous tract is divided, since, when the fistula is cut, the distal segment has a tendency to retract downward. We have usually opened the proximal and distal segments, threaded the nasogastric catheter through and left it in place while the anastomosis is accomplished. We use 5-0 silk interrupted sutures through all layers, taking great care to approximate the mucosa.

This catheter may then be withdrawn, but some surgeons prefer to leave it in place until the completion of the chest part of the operation. One may then turn the baby over, perform a feeding gastrostomy (Stamm) and at that time grasp the lower end of the catheter, tie a thread to it and withdraw the catheter, taking the thread with it up through the gastrostomy, esophageal anastomosis and out the nostril. The thread is then tied to itself and left in place, in the event it is desired to dilate the anastomosis at some future date. Because the distal segment is narrower, it is safer to pass graded rubber cylindrical dilators (with loops on each end) through the stoma from below upwards until an adequate lumen is obtained. This can be done without anesthesia, while antegrade bouginage requires anesthesia and direct visualization.

ANOTHER good technique is to hold the ends of the proximal and distal esophagus together with Potts' clamps. With this method, the catheter cannot be used as a splint during the suturing.

It is extremely important to seal off the fistulous tract. One should always attempt to cover the stump of the fistula on the tracheal side by a flap of pleura. If the fistula should reform, it is extremely difficult to close it successfully, due to the scarring, bleeding, infection, etc. Every effort should be made to secure a firm, watertight and permanent closure of the fistulous tract at the initial operation. The chest can then be closed with pericostal sutures, leaving a catheter from the pleural space to a water seal. The child may be fed after 48 hours or so, starting with liquids. The infant can swallow its own saliva from the time the esophageal continuity is restored.

In preparing the feeding and decompressive gastrostomy it is essential that the stomach be sewn to the anterior abdominal wall. The catheter can be a mushroom, Pezzar or Foley, but one must fix the stomach snugly against the anterior wall. It is the intention to suture the stomach to the abdominal wall as a permanent attach-

ment, remaining after the catheter has been removed. Catheter gastrostomy has been extremely useful in the management of newborn infants with intestinal obstruction at any level.

Malrotation

To understand this anomaly, remember that the superior mesenteric artery is the axis on which the bowel must turn. The bowel returning from its early fetal position in the physiologic "umbilical hernia" undergoes a normal counter clockwise rotation around this arterial axis. Malrotation occurs in many forms, but the one which produces duodenal obstruction in the newborn is due to abnormal bands from the hepatic flexure and right colon to the right lateral abdominal wall. These bands compress the duodenum and they must be cut to relieve the obstruction. About half of the cases of obstruction due to malrotation will be seen within the first week of life, but the remainder may not become symptomatic for months or years.

In the cases of obstruction due to malrotation in the newborn, the colon is almost entirely to the left of the midline. The duodenum usually runs farther down the right side and seems straighter and longer than normal. The small bowel will have a very narrow base to its mesentery and thus be very prone to volvulus. After the obstructing bands have been cut, some surgeons try to complete the rotation by fixing the right colon in its normal anatomic location, which also has the effect of broadening the base of the small bowel mesentery.

Malrotation should always be looked for in infants with large omphaloceles or those with large diaphragmatic herniae, since these anomalies tend to prevent the completion of the normal rotation.

If the plain films of the abdomen do not reveal the location of the colon in the left abdomen or the diluted unusually vertical duodenum, studies with contrast media may be helpful. A barium enema is a little safer than an upper G.I. series if the infant is vomiting copiously.

Volvulus of the small intestine in infants who have a narrow based mesentery, because of malrotation, is unusually dangerous because the twisting can shut off the arterial blood supply so promptly and completely. The exposed position of the superior mesenteric artery makes it unusually vulnerable to injury in this anomaly.

Duodenal Atresia

It has long been taught that intestinal atresia is due to failure of a normal process of proliferation of mucosa, followed by vacuolation and then recanalization. There is good evidence that this "recanalization failure" is not the cause of atresia at lower levels, but at the duodenal level there is some evidence in favor of this hypothesis.

The incidence of associated congenital anomalies is higher with duodenal atresia than with any other form of intestinal atresia. This is consistent with recent work on the "trisomy" and other chromosome errors, which is the basic defect in the anomaly formerly known as "Mongolism". Sixty percent of the infants with duodenal atresia have some other congenital anomaly, and in twenty percent it is "Mongolism".

In almost all instances, atresia of the duodenum occurs below the ampulla of Vater; it occurs above the ampulla in less than ten percent of the cases. If the atresia is above the ampulla, the vomitus will not contain bile. In the majority of cases the atresia is lower and the vomitus does contain bile. Biliary vomiting in a newborn should always be taken as strong presumptive evidence of intestinal obstruction.

As a rule, babies with duodenal atresia escape detection for a little longer than infants with atresia at lower levels. This is true for several reasons: they are not distended, their vomiting, although bile stained, is neither copious nor sustained in many cases, and the most deceptive fact of all, they often pass what appear to be normal meconium stools. If the Farber test had any usefulness at all in detecting atresia, it was probably in cases of duodenal atresia. Most authors now agree that this test is not reliable in atresia at any level. It is important to recognize the very great chance of error, if one demonstrates squamous cells in the stools, and concludes therefrom that the intestinal tract is patent.

ON the average, infants with duodenal atresia are finally diagnosed and operated upon at an average age of 4.6 days, compared to an average of 2.5 days for atresia at lower levels. These infants, like most infants with intestinal obstruction in the first week of life, have a physiologic polycythemia and an average hemoglobin level of about 17 to 18 grams percent. This

may be aggravated by dehydration, but this relative excess of blood should be recognized in any plans to transfuse the infant. Its relationship to the physiologic jaundice of the first few days of life is too well known to require repetition.

The most valuable diagnostic test for duodenal atresia is the plain roentgenogram of the abdomen. The classic "double bubble" (gastric and duodenal bubbles) is sometimes better seen with the infant erect rather than supine. It is not always seen in this disease, but when it occurs, the diagnosis is established. It is academic whether this x-ray appearance is due to duodenal atresia or to annular pancreas, the treatment is the same. It is not necessary to determine definitively whether the obstruction is due to duodenal atresia or to annular pancreas, any attempt to correct the anomaly by direct incision and suture is doomed to almost certain failure.

The standerd precautions against anastomosis of the stomach to the jejunum have been repeated, because of the risk of later peptic ulceration, but there has not been a large experience in infants to support this view. It may be technically easier to anastomose the stomach rather than the duodenum, but if it is at all possible, a side-to-side anastomosis between the duodenum proximal to the obstruction and the jejunum just distal to Treitz' ligament is preferable. Whether this is done through the mesocolon or in front of the hepatic flexure will depend on the position of the colon, the presence of any malrotation, and the mobility of the jejunum at that level. Either placement is perfectly satisfactory. The same may be said for a one-layer vs. a two-layer anastomosis. The important points are these: do not attack the lesion directly, do a side-to-side anastomosis in the most convenient location and take a good look to be sure the rest of the intestinal tract is patent all the way to the anus.

A survival rate in excess of 60% is expected for this anomaly. The majority of the failures will be due, in part, to the other anomalies so commonly found in these cases.

Jejuno-Ileal Atresia

The higher the level of the atresia, the more prominent the vomiting, the less prominent the distention and the greater the likelihood that the infant will pass some stools. The lower the level of atresia, the more one expects distention, there is less vomiting or none, no stools and the infants appear much sicker in a shorter period of time than those with higher levels of atresia.

Atresia of the intestine below the duodenum has stimulated some very interesting research and speculation into its etiology. It is pointed out that in atresia of the intestine at lower levels, there is not only a defect in the bowel lumen, there is often an actual gap in the continuity of the intestine and a gap in the mesentery. Very often there is bile in the intestinal lumen below the level of the atresia. The liver does not begin to secrete bile actively until about half way through fetal life, so that the intestinal obstruction must have occurred after this step in fetal development. The same observation applies to the squamous epithelial cells and lanugo hairs from skin, neither of which could have appeared in the amniotic fluid at the time the failure of the intestinal vacuolation and recanalization supposedly occurred (before the 12th week of fetal life). Thus, the presence of lanugo hairs and squamous epithelial cells in the lumen below the point of obstruction are evidence that the obstruction occurred later in fetal life than the 12th week. Lynn's detailed study of 89 human embryos showed that while epithelial plugging and recanalization *can* occur in the bowel at any level, it does not occur regularly in any area, and the process actually developed in only one-third of the embryos studied. These are the main reasons for believing that atresia is an acquired lesion.

It has been postulated that some vascular accident in fetal life is responsible for atresia. A variety of causes for the vascular accident have been proposed, such as incarceration of the physiologic antenatal umbilical hernia, infarction, thrombosis, kinking, twisting, and meconium granuloma formation with penetration of the bowel wall, leading to localized areas of meconium peritonitis with narrowing, obstruction and finally devascularization.

In experiments performed on puppies while still within the uterus of the mother, ligation of the vessels of the intestinal tract of the unborn puppy will lead to an anatomic defect which resembles atresia when the puppy is born. This experiment has been so difficult technically,

that no one has yet been able to keep the puppies living in the uterus for an extended period after the intra-uterine attack on the puppy's intestinal vessels, but the anomaly does appear in puppies delivered a few days after the surgery.

The diagnosis of atresia of the intestinal tract can be made from plain films of the abdomen, although the level may not be precisely defined. There is no reason to use contrast media. It is important in operating upon these infants to explore the entire remainder of the intestinal tract, to be sure that there are no other anomalies. Multiple areas of atresia occur in about 10% of the cases, and if the additional areas of obstruction are not found and corrected the child will not survive.

WE advocate resection of the dilated bulbous end of the proximal segment, back to bowel of reasonably normal caliber and peristaltic activity. This is advisable because the dilated, overstretched bowel cannot deliver an effective peristaltic rush through the stoma after the anastomosis. The dilated bowel is so weakened that the obstruction persists as a physiologic phenomenon, even though the lumen is anatomically patent. One of the most discouraging problems in this type of surgery is a patent anastomosis that will not work. The best answer we have found is resection of the distended dilated tip, back to an area that can deliver an effective peristaltic rush. This is accompanied by a markedly higher survival rate and better function.

We are convinced that a primary anastomosis is the procedure of choice, whenever that is feasible. The higher the level of obstruction, the greater the fluid and electrolyte loss, if some form of diverting enterostomy is established. If it is necessary to do a diverting enterostomy, even a few centimeters of bowel length can be critical, since the added resorptive surface is valuable. If a primary anastomosis of small bowel is planned, at any level below the ligament of Treitz, resection of the dilated tip is advantageous.

Whenever possible, the anastomosis should be done between loops of approximately similar size. The collapsed distal limb can be enlarged by distending it with saline solution, by end-to-side connection utilizing more of the side of the bowel to accommodate the disparity in size, or by side-to-side anastomoses if the turned-in blind segments are not too long. Late complications can result from blind loops, if the side-to-side anastomosis is accomplished in a way that will leave a long blind segment for stagnation or ulceration. We have not been able to demonstrate any inherent superiority for any type of anastomosis in the small bowel, one or two layer, end-to-end, side-to-side, end-to-side or any other. In general, it is not advisable to leave an indwelling tube through the stoma.

Meconium Ileus

This form of obstruction occurs only in the terminal ileum and is due to plugging of the lumen by the hard, grayish pellets of abnormal meconium. Proximal to the portion plugged by the "pellets", which is not especially dilated, is a markedly dilated segment containing extremely thick, tenacious, viscid dark-green-black meconium. The anomaly is invariably the consequence of fibrocystic disease of the pancreas.

The surgical problem can be solved in several ways, 1) multiple enterotomise with evacuation of the obstructing meconium 2) resection of the obstructed portion with its contained meconium plug and primary anastomosis, or 3) double barreled entero-enterostomy (with spur formation) done with or without resection of the obstructed segment.

These 3 methods are listed in the order of their choice, depending on the state of the bowel and of the infant generally. The anomaly can be diagnosed on plain films, because the viscid meconium traps small bubbles of gas in its mass, giving a characteristic "ground glass" bubbly appearance in the lower abdomen with gas filled, dilated, obstructed loops proximal to it.

The basic defect in pancreatic function makes it difficult for the infant to metabolize fats and related substances. The fat soluble vitamins, particularly vitamin A, cannot be adequately absorbed and so all of the epithelial structures which require this vitamin for their proper maturation fail to develop normally. The respiratory epithelium cannot mature and these children are extremely susceptible to infections of the tracheo-bronchial tree and lungs. Infections and decreased, abnormal pulmonary function are the ultimate cause of death in most of these

children. The skin cannot mature normally, so that these children lose abnormal quantities of electrolytes in their sweating and are highly susceptible to heat prostration as a result.

Surprisingly, once the intestinal plugging by the hard, viscid meconium has been relieved by removal of the plugs and re-establishment of continuity, the phenomenon of obstruction from this cause does not recur. The precise chemical abnormalities of the obstructing meconium have never been determined.

Rumors to the contrary notwithstanding, an infant can tolerate an ileostomy, if it is placed close enough to the colon and the infant's fluid and electrolyte needs are recognized and met. It is better to have a living baby with a temporary fecal fistula than a dead one with a malfunctioning closed stoma, but a diverting enterostomy is an emergency expedient, not the final procedure of choice.

Atresia of the colon is relatively rare and is managed about the same as small bowel atresia. A colostomy is much easier for a baby to tolerate than a small bowel fistula. The disparity in size in colonic atresia is apt to be more extreme, without decompression, and there is much less length to permit resection back to a properly sized segment.

The most important factor in any surgery on these anomalies is safety. In the colon, more than anywhere else, the establishment of an enterostomy is a satisfactory life saving maneuver, if a primary anastomosis is not readily feasible.

Imperforate Anus

Infants with this anomaly should be investigated for any associated involvement of the genito-urinary tract, since fistulization is very common. In the male, the common fistula is to the bladder or the urethra; in the female, fistulae to the urinary tract are almost unknown, but fistulization to the vagina very common. If the opening in the vagina is at, or very near, the fourchette and the opening is large enough to permit adequate stooling, an immediate attack upon the anomaly is not mandatory. It is preferable to wait until the child is about two years old, when the structures are larger, before attempting to transfer the rectum to the anal dimple, reconstruct the posterior vaginal wall and the integrity of the perineal body, which will be shortened in all cases. There is some advantage to using a temporary colostomy while this reconstruction is being completed.

In the male the fistula to the urinary tract is in such delicate structures, any attempt to correct the anomaly from the perineal approach is doomed to failure and should not be attempted.

There are many advantages to the abdominoperineal approach for correction of this anomaly. This method makes it possible to see the fistula under direct vision. The placement of the bowel in the anal dimple can be anatomically accomplished with far less disruption of the anal structures. The dissection of the rectum in the hollow of the sacrum and adjacent areas should be conducted just as close as one can possibly get to the bowel itself, so that no harm will come to the delicate nerves supplying the structures adjacent to the male urethra.

Serious damage can be done to the pelvic nerves, the urethra, the sphincters and other structures in attempts to correct this anomaly from the perineal approach. The only cases that can be safely corrected from below are the rare ones in which there is only a thin membrane at the lower end of the rectum, bulging out when the baby cries and presenting in the anatomic anus. If the defect is more than a simple membrane, the perineal approach should not be undertaken.

The infant with this anomaly should have the surgery deferred for a few hours, to be sure that there is gas reaching the rectum, thus demonstrating that there is not a higher level of atresia, also. As soon as the x-rays reveal swallowed air at the level of the rectum, the anomaly can be attacked surgically. There is no advantage to doing inverted x-rays with a marker in the anal dimple, since the only cases that should be attacked perineally are those with simple membranes. Any higher level of atresia demands an abdominal approach, so that the extent of the defect in millimeters is academic.

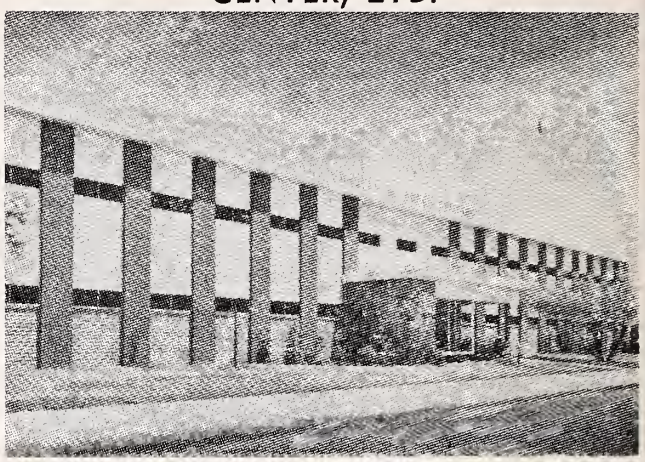
We prefer to enter the abdomen through a low left rectus incision, begin the mobilization laterally, hugging the bowel as tightly as possible and continuing downward until the tip of the bowel can be delivered from the hollow of

the pelvis at the coccygeal level. The lowest point of the bowel is not the point at which the fistula comes off — that is higher and straight anteriorly. The size of the bowel can be reduced by passing a Penrose drain around it and by twisting the drain, one can force the gas and meconium up to a higher level, leaving the bowel in the pelvis almost empty. After the lowermost segment has been delivered, the last part to come out is the fistula, which is always anterior. This can be seen, cross clamped, divided and oversewn. If there is a catheter in the urethra, damage to the urinary tract should not occur and its lumen should not be compromised.

AFTER the bowel is delivered intact from the depths of the pelvis, the index finger of the surgeon's right hand can be passed down between the levators to make the anal dimple bulge from the inside. Then with a No. 15 blade the center of the dimple is incised. With a clamp the fibres are spread enough to permit the passage of a long curved tonsil clamp from below upward to where the lowermost point of the intact rectum can be grasped and drawn through the anal opening. The abdomen can then be closed, leaving the lowest inch or two of the rectum protruding from the anal incision but still unopened. After the abdomen is closed, the rectal pouch is opened and the full thickness of the bowel wall sutured to the anal area with interrupted sutures. The colon can then be irrigated with saline to rid it of the packed, sticky meconium. The urethral catheter can be left in for varying periods, if desired, but it is usually removed at completion of the procedure.

It has been suggested that this procedure should be delayed until the structures are a little larger by doing an immediate colostomy on all infants with imperforate anus. We have felt that the complications and nursing problems associated with a colostomy for the infant's first months to a year or two are formidable. The delay might be worthwhile if some great advantage in reduced mortality or eventual functional performance could be shown. To our knowledge, there are no significant advantages in these regards and so we prefer to proceed forthwith, if the infant is a reasonable risk for major surgery.

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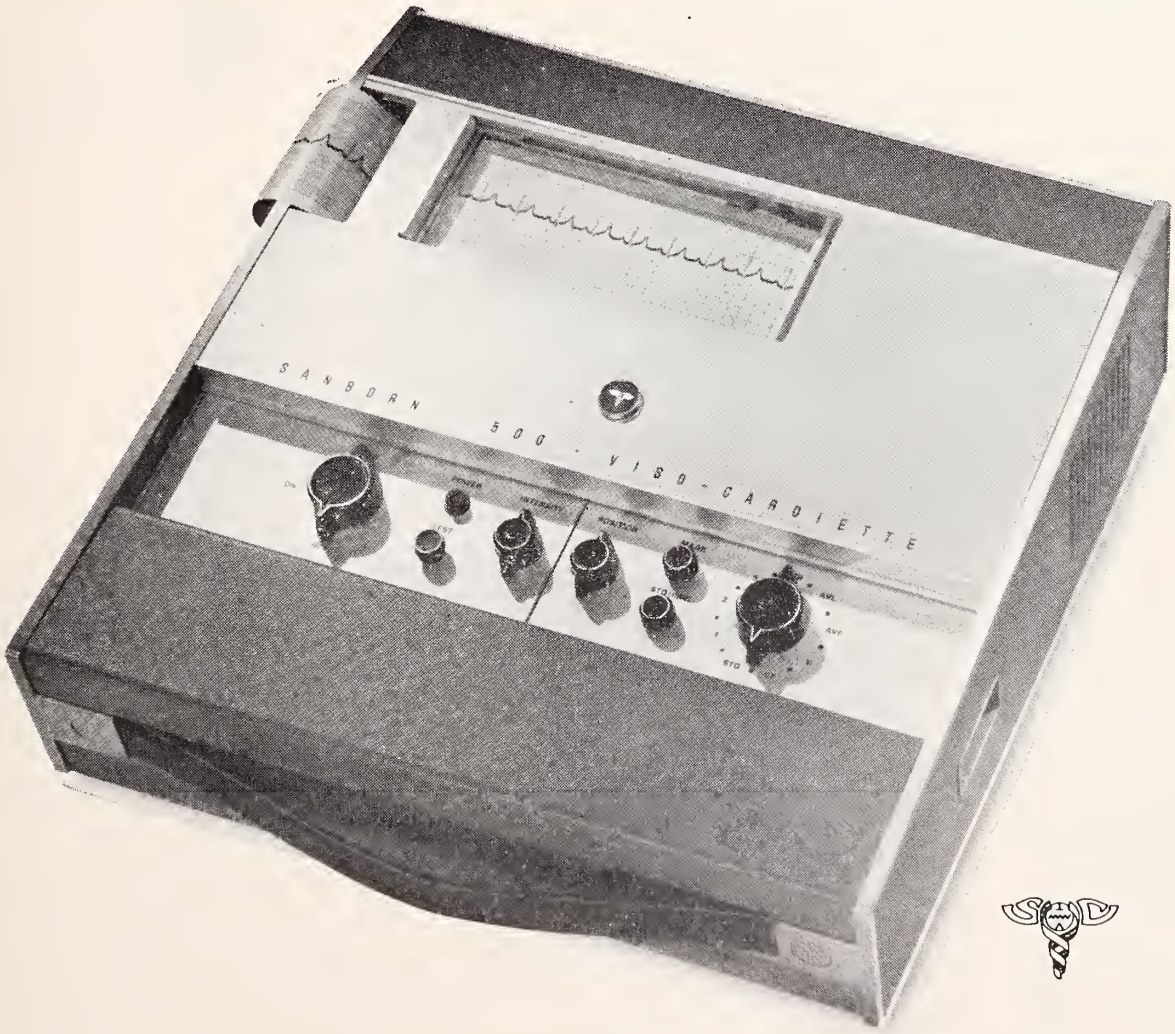
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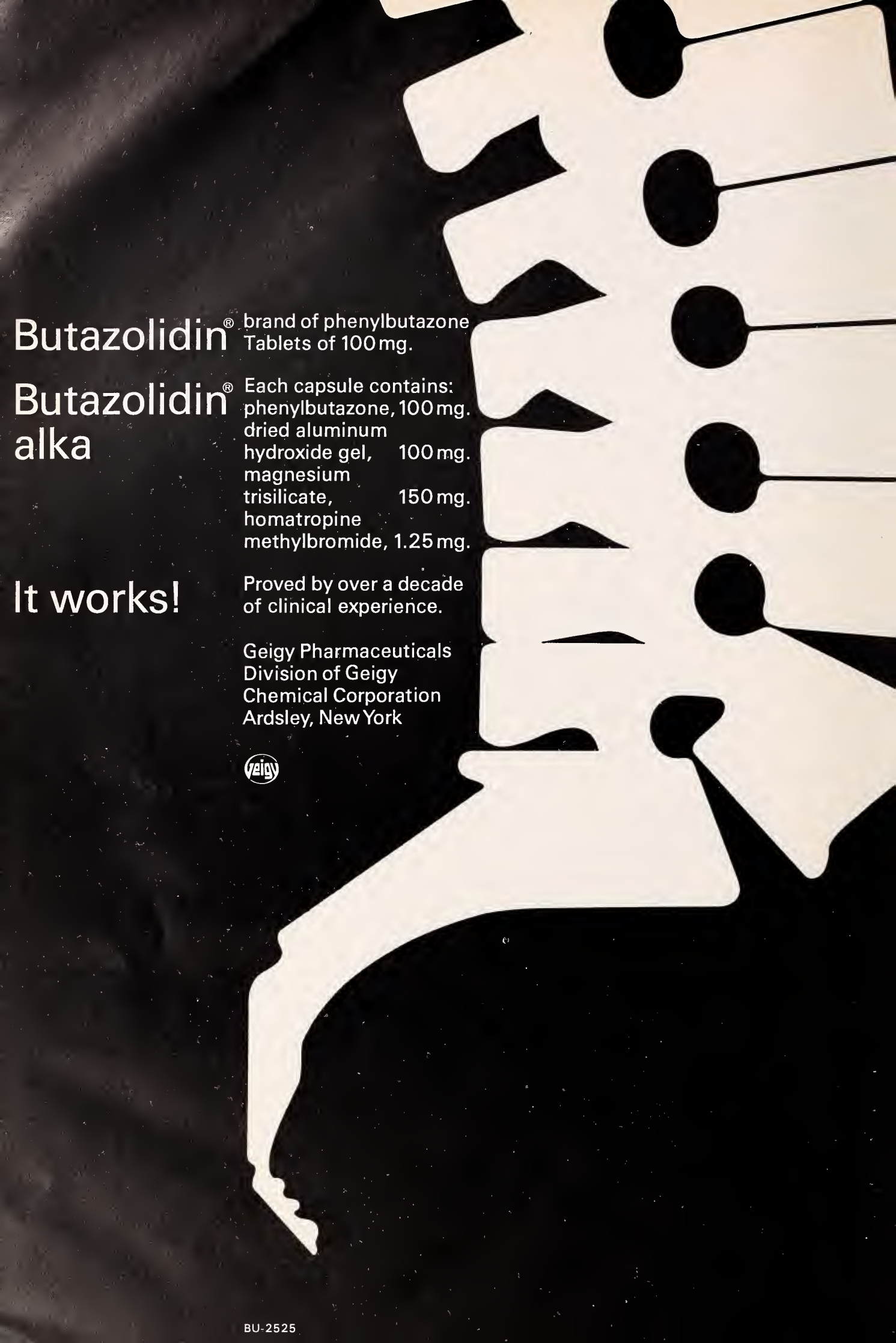
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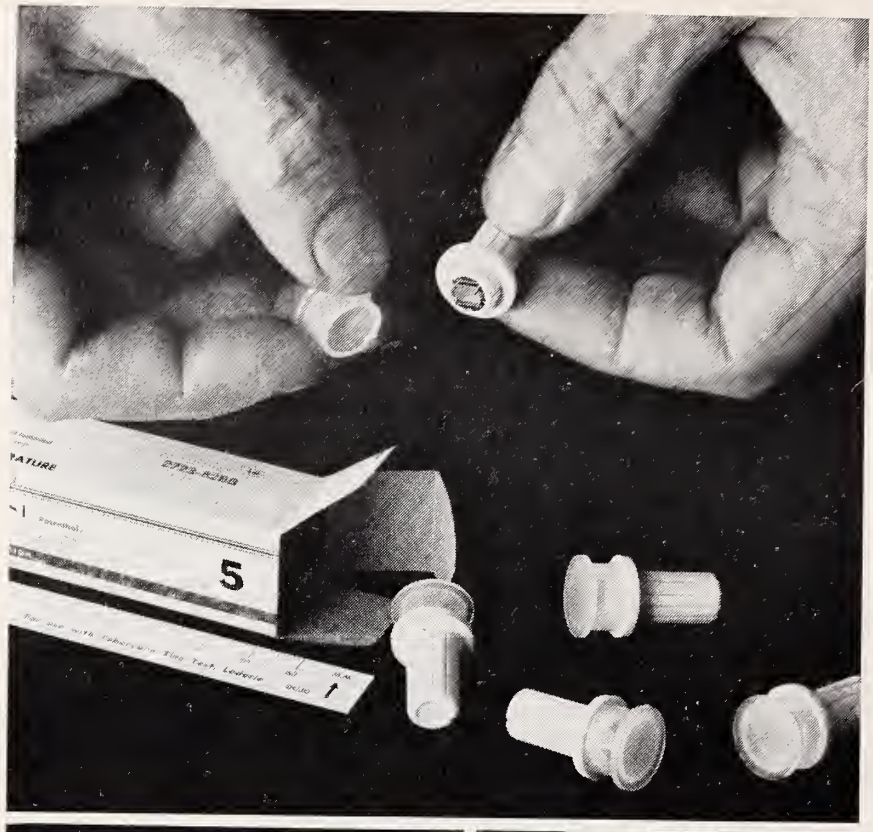
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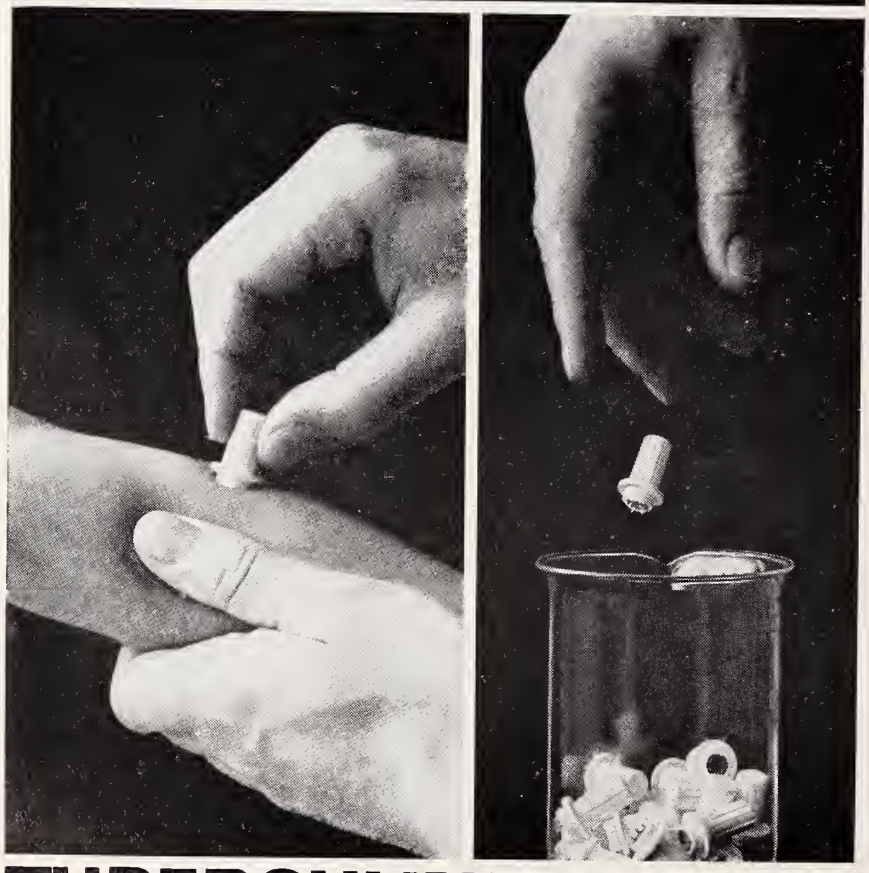
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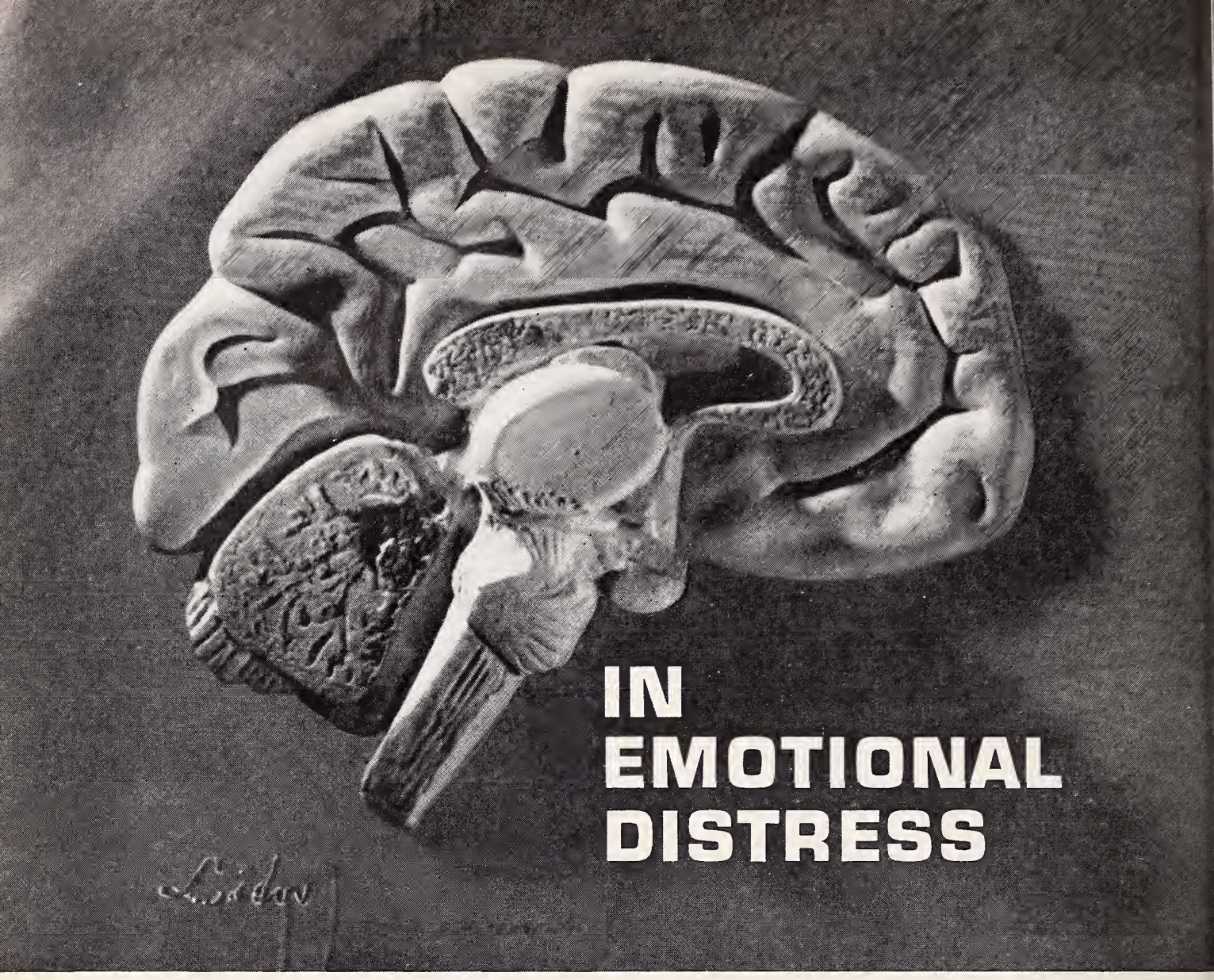
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WITH APOLOGIES TO AESOP



Dr. Brewer

Once upon a time, somewhere in this world, there was a group of good citizens who joined themselves together for their mutual improvement. Over the years, they grew and grew in numbers until it was necessary to divide themselves into smaller groups, which they called committees, to accomplish all of their work. But their numbers continued to multiply — and finally they had to send individual persons to represent them — and the work for mutual improvement went on apace.

Now these citizens were not among the most affluent in all society and often times worthy projects could not be activated for want of funds. Then one day a representative of a foreign group approached one of the committees with a large gift of money, a real gift with no strings attached — just its acceptance.

"Strange indeed," thought the members of the committee. But they quickly realized that now all of the projects they had ever considered could be completed, and with money left over. So they were hard pressed finally to disapprove acceptance of the gift, because they knew their constituents would disapprove too. But they did and the good works went on apace and with the approval of all.

The moral of this little fable could be that the end does not justify the means. But for the moment let it be that in a governing body resides and property of the constituents, a sacred trust based upon a faith in the integrity, veracity and dependability of the governing body, the "holy function" of Edmund Burke.

All of this is what I was trying to say at Chandler, applying this broad concept to all of our medical society officers and committeemen in any capacity, at county, state and national levels. That this is not a one man's fancy has been demonstrated where ever I have been privileged to go in any official capacity in medicine. It has been a heartwarming experience to have difficulty often times discerning who the constituency really was with our officers jealously guarding and protecting the medical welfare of their physician colleagues, their patients and the whole public.

But there is room for real concern in the attacks of our non-medical adversaries who somehow see a self-aggrandisement in holding office within organized medicine, who strike at the very self-abnegation and idealism and altruism of our officers, who see the necessity for efficient organization everywhere but in medicine, and who would reduce medicine to a trade with lay persons — with more time and ability in interpersonal relations and more altruism — to direct the show. Two of my children have been exposed to this in college classes in government and political economics and I myself have read it in popular book form. It is hard to consider a counter-attack that is not repugnant to us as doctors, but we will have to continue to toot our own horns a little louder and look alive in the transparent houses we are forced to live in, if this facet of our medical existence is to be widely known and appreciated.

With no attempt at sermonics, or intent in that direction, there is another side of the coin — as always. Having elected our representatives, we, the constituents must support them, as never before in the history of medicine. This is no time for schisms and factions, in a group so similarly trained and motivated and oriented as ours. This is no time for arms, but for unity.

I freely admit that I am not astute enough to enter into any profound discussion of majority the trusteeship of its constituency. Trusteeship is

a covenant of protection of the will and rights and minority groups and opinions. But if our representatives are elected by a majority and act for the majority, this then represents the will of the majority, which we Americans so proudly hail as Democracy. Certainly the minority must have the right to be heard, and must be heard. And it may always seek to change the will of the majority by every honorable means, but until it succeeds, the majority will is the law of the group, and personal invective and sub-rosa degradation and approbrium only detracts ultimately from the minority itself. Often, in the fullness of time, compromises develop deliberately or insensibly and the minority stand disappears from view, only to have other minorities appear.

I have implicit faith in the trusteeship of the delegates and commissions and officers of our AMA. And I am painfully aware that the AMA has come into an unfavorable light recently, according to some sources, because of its stand on labelling of cigarette packages, especially since AMA-ERF about the same time accepted a large sum of money for research on the effects of cigarette smoking.

Since the AMA-ERF is an arm of AMA, their activities must have a connection, and in this case it must be an evil one. But thus far this is only one side of the story and I personally cannot draw any — I mean any — conclusions until I hear the other side. The California delegation has introduced two resolutions which should provide all of the answers which we all require.

In the meantime, our communications seem to have broken down, and badly. Maybe we ought to favor Resolution #15 of the Alabama delegation to consider the establishment of a teletype network between the AMA central office and the state medical offices for rapid dissemination of information. — You ought to see the communications on my desk right now!

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COLLEGE OF MEDICINE — A NEW ERA

When the first students enroll at the College of Medicine of the University of Arizona, a new era in Arizona medicine will begin. To help the physicians of this state participate in this development, Dean Merlin DuVal will keep us informed on the plans and progress of the school. Elsewhere in this issue of *Arizona Medicine* is a reprint of Dr. DuVal's recent address before the members of the Arizona Medical Association. Beginning next October the "Dean's Page" will appear as a regular feature.

Dr. DuVal has said, "The quality, the outlook, the aspirations of the medical profession in this state, I interpret as solid — solid enough to be used as a foundation on which to build a great medical school." We can prove him correct by supporting the school both vocally and financially.

Our goal as physicians and members of the community must be to help insure the creation of not just another medical school, but of a truly outstanding school of medicine whose students do not become medical mechanics, but whose graduates are physicians with a sense of spiritual unity toward the great men of medicine who have gone before. A school based on the ideals and imbued with the spirit of Hippocrates, Vesalius, Paré, Osler and Cushing can grow up in the shadows of the Saguaros, not far removed from the incessant beat of the medicine man's tom-tom. Let us all pledge our support in bringing this dream to reality.

Robert F. Lorenzen, M.D.

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Material submitted for publication in ARIZONA MEDICINE should conform to the following policies:

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2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

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THE WIDE SPECTRUM OF MEDICINE

by

John R. Green, M.D.

A statement directed to the Arizona State Medical Association on May 2, 1964, by Merlin K. DuVal, Jr., M.D., Dean of the College of Medicine of the University of Arizona, appears in this issue. The purposes of the new medical school include the training of doctors as well as medical research. These programs will be financed by state appropriations, production of income within the school itself, and research grants. Doctor DuVal reminds the members of our profession of the precarious balance in which these three sources of support must be held and suggests that organized medicine in Arizona will be protecting itself when it helps the school maintain a proper balance among its sources of operational support.

In addition, he points out that the need for keeping abreast and acquiring new knowledge, the insecurity that so frequently accompanies financial uncertainty and the problem of prestige and community acceptance are present, both for the school and the profession, and will continue to exist for either group alone, even if the other were to be abolished. Such differences as do exist between academic and practicing physicians are superficial – not substantive.

W. R. Manning, M.D., and W. Albert Brewer, M.D., writing as Presidents of the Arizona Medical Association, have commented about the importance of unity and of universally common basic motivations respectively for the medical profession. It is obvious that each practitioner of medicine – the teacher, the medical scientist, the full-time or part-time academic staff member of a hospital or medical school, the physician on the staff of Veterans Administration, U. S. Public Health Service, private, county and state hospitals, and the physician in his private office – has selected his own way of life in the profession for a variety of reasons. Our methods and philosophies as individuals, medical societies, medical educators, and medical scientists may differ, but they should be blended productively for the ultimate good of the patient. The attitude of one group toward another should always be tempered by the knowledge that we have a common goal. Our purposes should always be constructive; our criticisms considerate. Individuals who have chosen academic medicine as a career can expect many intangible rewards in teaching, research and service in spite of reduced financial rewards. The practitioner of medicine enjoys the satisfaction of his patient-doctor relationships, his services to the community, and accompanying livelihood.

The spectrum of medicine is, indeed, wide. It can best serve the public and the profession by acting as a unit, and not a jungle and a jumble of conflicting bands. I am sure that Dean DuVal can expect and will receive the support of organized medicine in Arizona as he achieves successful completion of this challenging mission.

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1. Viglione, J.P.: Clin. Med. *69*:1157 (May) 1962.

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Dr. DuVal

MEDICAL EDUCATION IN ARIZONA

by
Merlin K. DuVal, Jr., M.D.

A statement made by Dr. Merlin K. DuVal, Jr., Dean of the College of Medicine of the University of Arizona to the Arizona State Medical Association May 2, 1964.

The Regents of the Universities and State College of Arizona have authorized the establishment of a College of Medicine. As a result of this action Arizona becomes the 42nd state to have a college of medicine within its borders; the University becomes a complete university, and the medical profession of the state acknowledges its heritage and fulfills its obligation to perpetuate itself.

There are many questions which deserve serious consideration before we can begin a new program of medical education, and we will want to explore all of these questions with the members of the medical profession soon. Today, however, I have selected for discussion three problems which are of tremendous importance to all of us.

The first concerns itself with the mid-twentieth century phenomenon of the "disappearing general practioner." I am told that although membership in the American Academy of General Practice is still on the increase, membership in our specialty organizations is increasing substantially faster. This change in emphasis, from the general practice of medicine towards increased specialization, is frequently mentioned as a prominent cause for the presumed change in the "image" of the medical profession in the eyes of the public we serve. This is not an unreasonable assumption since the general public must have quite a problem indeed in equating today's brand of medical practice with that of bygone years. Whether or not such a comparison should be made at all is another question since we would surely agree that almost nothing else in this day and age will bear such a comparison either.

What are the reasons why this change has taken place? I think that some of them can be traced to the influences of our modern medical schools, while others stem from within the profession itself.

It is my distinct impression that within our medical schools the pursuit of new knowledge in the life sciences has achieved a stature and significance that knows no parallel in our recent history. Faculty appointment and promotion depend upon it; membership in many national scientific societies can literally not be achieved without it; prestige is related to it. One might honestly suggest, without being facetious, that the pursuit of new knowledge has taken on more characteristics of a foot race rather than a foot path of scholarship. It is inevitable that those who are engaged in such activities will be more conscious of the rate at which new knowledge is being created and will therefore begin to channel their own efforts and interests into narrower

fields. In this way they can literally be experts in at least one area of medical endeavor, and they can substitute consultation for comprehensiveness. When this phenomenon takes place within the medical school itself, it is expressed administratively through the proliferation of individual departments. Where only recently there was a limited departmental breakdown between medicine, surgery, pediatrics, obstetrics, and psychiatry, a series of subdivided departments now appear. In surgery, for example, we may be able to distinguish eye, ear, nose and throat, orthopedics, urology, neurosurgery, thoracic surgery, pediatric surgery, plastic surgery, head-neck surgery, proctology, etc. As each develops beyond the embryo stage, and as its own muscle-mass increases, it becomes strong enough to fight its way to membership on the curriculum committee where it pleads with increasing effect for more and more of the students' time. The impact of this intramural development is nowhere more apparent than in the student himself who, by the time he leaves medical school, may be confused, insecure, and perhaps even frightened as he faces his very last assignment, which is to pull all of the pieces back together and go on out into the general practice of medicine.

But this is only half of the story. Evidence is rapidly accumulating that the profession itself is redefining its own relationship to the public it serves. Men who have been engaged in the general practice of medicine for years have, in many instances, started to limit their interests and offerings. (One index of this change is reflected in a study done recently in one of our large rural states. There are approximately 2,000 physicians enrolled as members of the state medical association in that state. The Directory of Specialists indicates that there are less than 500 certified specialists among those 2,000 practioners. Yet, a survey of the individual members of the association revealed that approximately 900 of them indicated that they limited their practices.)

Similarly, there is evidence that some of the younger men currently entering this field are apparently trying to reshape the general practice of medicine to their own tastes. For example, some of these men make themselves available only during specified office hours; they may not share coverage of their hospital emergency room at night, and may even attempt to hide behind an unlisted telephone number. If I might paraphrase the late President of the United States, their attitude can be expressed by the question "What can my profession do for me, rather than what do I owe to my profession."

To start a new medical school in our country at this time will require a deep and thoughtful reappraisal of this entire problem. As a result of the visits I have been making into the far reaches of our state, I am persuaded that there is ample room in our profession for more family doctors. If this is the case, then those of our programs of balance among its sources of operational support. medical education which are currently in the early phases of development must include a sincere effort to help clarify and define this area of the public need. Then, having done so, we must take whatever steps may be required to satisfy that need, lest the vacuum be filled by others.

Second, I want to discuss medical research. At first glance it may be difficult to understand why I have included this subject among the more important problems. Let me try to justify its inclusion with the following comments. Without question, one of the most striking phenomena of our times is the impact on society of the fantastic rate at which new knowledge is being produced. It has been said that if one takes all of the world's knowledge between the time of Jesus Christ and 1750 A.D. as a unit, this unit doubled between 1750 and 1900; doubled again between 1900 and 1950; and has doubled once more in the last decade.

Medicine has not been left out of this growth, as most of you can testify to only too well. On the contrary, medicine is one of the areas in which new knowledge has been the most prolific. Consider for example, the increased size and scope of philanthropic foundations and their enormous grants, the birth of new societies and foundations whose efforts are geared exclusively to medicine itself or even to specific diseases such as poliomyelitis, cystic fibrosis, multiple sclerosis, cancer, heart disease, and arthritis. More recently, the federal government has invested in medical research on a scale never known before, and on a parallel only with that of exploring the corridors of the universe itself.

Lest you jump to the conclusion that I am decrying this course of events, let me make it clear that I consider it a superb example of American energy, curiosity, and know-how, designed to

substitute intelligence for ignorance. And while we worry increasingly about its cost in dollars, we are too inclined to forget that it has no equal as an investment. Medical research has added six years to our life expectancy since World War II. One hundred and fifty million people producing only $2,000 income per year add $300 billion annually to our gross national product — or approximately 300% of what we currently invest in research in medicine.

However, research on this large scale does create several problems. Although no one would deny that one of the primary obligations of a university is to create new knowledge, we do need to give serious thought to the question: at what point does the impetus to create new knowledge successfully displace the primary function of the university which is still, after all, edueation. In medical schools, many of us believe that this point may be very close at hand if, indeed, it has not already been passed.

Why then is this important for us to consider in Arizona at this time? It is well to recall that a medical school is an expensive operation to undertake and to support, although there is no serious doubt that Arizona has the resources to undertake such a program. However, the income necessary to keep a medical school in operation will ultimately arise from several sources. Chief among them will be three: state appropriations, production of income within the school itself, and research grants. May I remind the members of our profession of the precarious balance in which these three sources of support must be held? If state appropriations are inadequate, the school and its faculty must seek to produce additional income, sometimes in open competition with the members of the profession itself, if the difference between appropriations and operating costs is to be met. If, in the interests of maintaining good relationships with the members of the practicing profession, the school places a ceiling on income produced locally, then the gap must be closed by additional research grants. In either instance the primary mission of the school will be rapidly twisted to that of a center for private practice, or a research institute, with education becoming a side product in either case. I cannot bring too forcibly to your attention the meaning of these facts of life and I can only suggest that organized medicine in Arizona will be protecting itself when it helps the school maintain a proper

Third, I would like to discuss the relationship of the school of medicine to the profession itself. Our profession has a long and distinguished history relative to its own perpetuation. The road has not always been as smooth as it might have, but it could not be reasonably argued that it has not been an effeetive route. Today, physicians still participate in the selection of medical students, their education and training, and their ultimate enfolding into the profession itself.

I have already mentioned a few of the factors which have seemingly strained the relationship between the profession and its schools. The paradox of this situation is that the few areas in which there is genuine conflict are essentially identical in both the profession and in the schools. Parenthetically, these same problems would continue to exist for either group alone if, hypothetically, the other were to be abolished. I refer, of course, to problems related to the acquistition of new knowledge, the insecurity that so frequently accompanies financial uncertainty, and the problem of prestige and community acceptance. One can only wonder why we have not joined forces and tackled these problems together in the past.

There is every good reason why such an approach should be worth our serious consideration. A separation between the profession and the school must be avoided if the heritage to which our profession is heir is to be honored and preserved. Any suggestion that we should go our separate ways is neither realistic nor acceptable. Without a strong profession there would be no need for medical schools to create new knowledge and transmit it to the next generation; without good medical schools, the profession would slip rapidly to the pre-Flexner era when self designated healers dispensed their curative tonics from the rear-end of covered wagons.

Although it is easy to document areas of conflict between academic and practicing physicians there is very little justification for the extraordinary emphasis that is placed on the so-called "town-gown syndrome". It is my own conviction that this syndrome is rather like the shadow of a tree which, in the angled light of twilight is disproportionately long, while in the overhead light of noon is virtually nonexistent.

Such differences as do exist between the academic and the practieing physician are superficial — not substantive. Fears that the arrival of

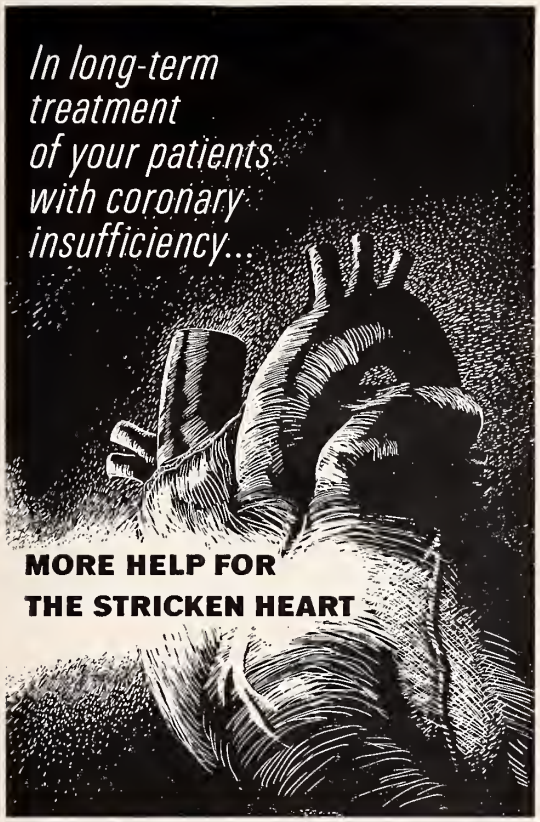
a medical school will threaten the income of the practicing physician have been proven, over and over again, to be just that – fears. Furthermore, I have been unable to find any documentable evidence, anywhere in the United States, that opening the doors of a university hospital affected, in any way, the rate or character of hospital admissions or loads in any other hospital in that community. By the same token, the full-time teacher who criticizes the "LMD", or withdraws from active participation with his county medical society, or retreats into the sterile bowls of his great white tower is quickly identified by both the student and the profession. Intellectual snobbery and ignorance of the quality of medical practice outside the university do not long withstand the light of day.

Prior to accepting the invitation to join with you in building Arizona's first college of medicine, I summarized the assets here somewhat as follows: first, a strong desire for quality and excellence in our educational program; second, an enlightened citizenry; third, the vigor and growth of the state; and fourth, a health-giving climate. But it was the fifth that was persuasive. The quality, the outlook, the aspirations of the medical profession in this state, I interpreted as solid – solid enough to be used as a foundation on which to build a great medical school.

On the first day of this 73rd annual meeting of the Arizona State Medical Association it was my very real privilege to have been invited to make an introductory statement to your House of Delegates. On that occasion, I commented that until very recently I was a surgeon. I said that I had never opened an abdomen without the deepest respect for the cooperative efforts that were ultimately responsible for a successful outcome – the acumen of the referring physician; the accuracy of the radiologist and pathologist; and the competence of the technical and nursing assistance. It is in this same spirit that I now approach this new assignment. The people of Arizona, energized and guided by the medical profession, and with the support of legislative and state officials, have decided to build a medical school. I am deeply pleased to have been invited to join you in this venture.

Now that I have met so many of you and heard your enthusiasm and support, I am completely confident that our mission will be successful.





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John Harris Patterson, M.D.

1916 - 1964



It has been my privilege to have known Dr. John Harris Patterson for the past 25 years, both as a personal friend and as a professional colleague. He was born in Nacona, Texas, and moved to Tempe in 1916. After attending the University of Cincinnati and the University of St. Louis Medical School, he returned to Phoenix to establish his practice in 1929.

During his 35 years of practice in the Valley, he served as Secretary of the State Medical Board for 20 years. Serving in this capacity, he was able to assist and advise many of us who came to the state later. Dr. Patterson was an active surgeon in Phoenix for many years, and one of his major contributions to the profession was his extreme interest and early work in the field of local anesthesia in major surgery.

Pat was extremely interested in sports and was an avid fan of the Arizona State University teams. He was particularly interested in horse racing and originally organized the Ingleside Turf Club which is now known as Arizona Downs. He also enjoyed hunting, fishing, and golf. A mutual friend told me the story of a hunting trip on which Pat took a brand new car. They were driving along a ridge looking for an unwary buck when Pat started to drive between two trees.

"You can't make that!" our friend exclaimed.

Pat replied, "Oh sure I can!" (Probably stated in much more emphatic terms.) Well he did make it exactly through the middle of the two trees, but on the other side he was minus four door handles from his new car. His only comment afterward was, "I told you I could get through those trees."

In conclusion, the death of Dr. John Harris Patterson has deprived our community and our profession of a valued physician and many of us of a close personal friend.

Mark W. Westervelt, M.D.



Harold H. McLemore, M.D.

1907 - 1964

Harold H. McLemore passed away April 12, 1964 in Mesa, Arizona a few weeks following a myocardial infarct — a condition which he had treated so often and well during his professional life.

Dr. McLemore was born in 1907 in Pounding Mill, Virginia and received his Bachelor's and Medical degree at the University of Virginia. He interned and took his residency at the Virginia Mason Clinic in Seatle, Washington. Further post-graduate study included work at the Brooklyn State Hospital, Brooklyn, N.Y., Columbia University, Michael Reese Hospital and University of Chicago.

During World War II he held such responsible positions as Chief of Laboratory Services, Chief of Roentgenology, Chief of Medicine and Medical Consultations and finally the position of Post Surgeon at Walker Army Air Force Base in Kansas. He was separated as a Major.

He was a specialist certified by the American Board of Internal Medicine. Also he was a Fellow of the American College of Physicians and a Fellow of the College of Cardiology.

After twenty years of practicing Internal Medicine in Spokane, Washington, Dr. McLemore opened an office in Mesa in 1955 for the practice of Internal Medicine later limited to Cardiology. The high regard with which he was held by his fellow physicians is attested to by the numerous times he was elected Chief of Medicine of Southside District Hospital.

Most physicians knew him as a kindly man who so well combined the grace of a Virginia gentleman with knowledge of a clinical scientist. Few of his colleagues knew him as a gifted amateur magician and skillful photographer.

During recent years Dr. McLemore's interests further broadened to include elaborate craftsmanship in a home work shop and a private collection of some sixty - six tropical birds which became the envy of Zoological Gardens in the Southwest.

To Virginia McLemore and her sons Eugene and Paul we convey our deepest sympathy, yet we are grateful that at least for a brief period we shared the company of a complete physician and a great man.

George L. Hoffman, M.D.

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RESOLUTION ON "AREA-WIDE PLANNING FOR HOSPITALS"

1. WHEREAS, the United States Public Health Service, in collaboration with the American Hospital Association, has conducted a survey and issued a joint report on "Area-Wide Planning for Hospitals", and

2. WHEREAS, this report, as well as burgeoning literature on the subject, presents the thesis that only the big voluntary non-profit or government hospital can render complete or the best medical service, and

3. WHEREAS, these reports, referred to, further advanced the seductive argument that the building of private-for-profit hospitals may deprive a community of an "opportunity" to obtain government funds for a non - profit institution, and

4. WHEREAS, these reports encourage compulsory area---wide planning for hospitals and other health facilities to be implemented by legalized state agencies, and

5. WHEREAS, the President of Blue Cross, Mr. Walter J. McNerney, has been quoted as stating "any group which builds without reference to community planning jeopardizes the solvency of Blue Cross", and

6. WHEREAS, in one area their Blue Cross tried to deny claims from a hospital which had expanded its plant without consulting its area planning board, and

7. WHEREAS, federal money is now being used for state-wide surveys for area-wide planning for health facilities in Minnesota, Kansas and Hawaii, and

8. WHEREAS, efforts are being made in various states to establish compulsory area - wide health facilities planning on a statutory basis, and

9. WHEREAS, S. 855 by Senator Hubert Humphrey, which passed the Senate last month without debate, affords federal recognition and commendation for all such planning boards and commissions and lays the ground work for ultimate complete control by such boards; therefore, be it

RESOLVED, that the Tarrant County Medical Society, in regular session assembled, this 3rd day of March, 1964, opposes compulsory area-wide planning for health facilities and calls on the House of Delegates of the Texas Medical Association to join in this opposition and to express this position to the American Medical Association; and be it further

RESOLVED, that the Medical Jurisprudence Committee of this Society be instructed to alert the governing boards of the several hospitals of this county to the dangers inherent in such compulsory planning.

Ed. note: The subject of area-wide planning for hospitals has received much favorable comment in recent discussions among the physicians of Arizona. Apparently there is opposition in some quarters. The above resolution is printed without editorial comment.

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22% were born after the Korean War ended.

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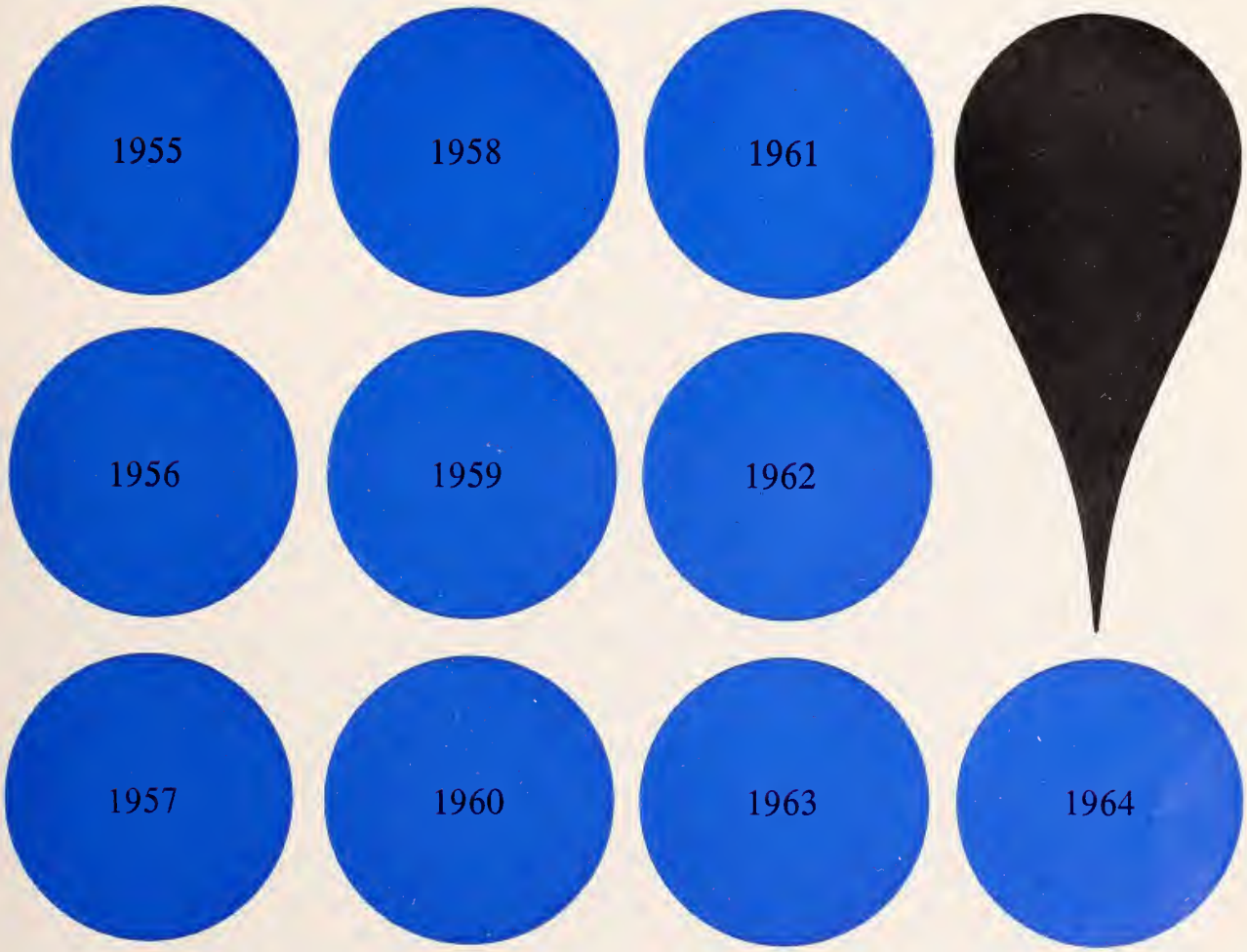
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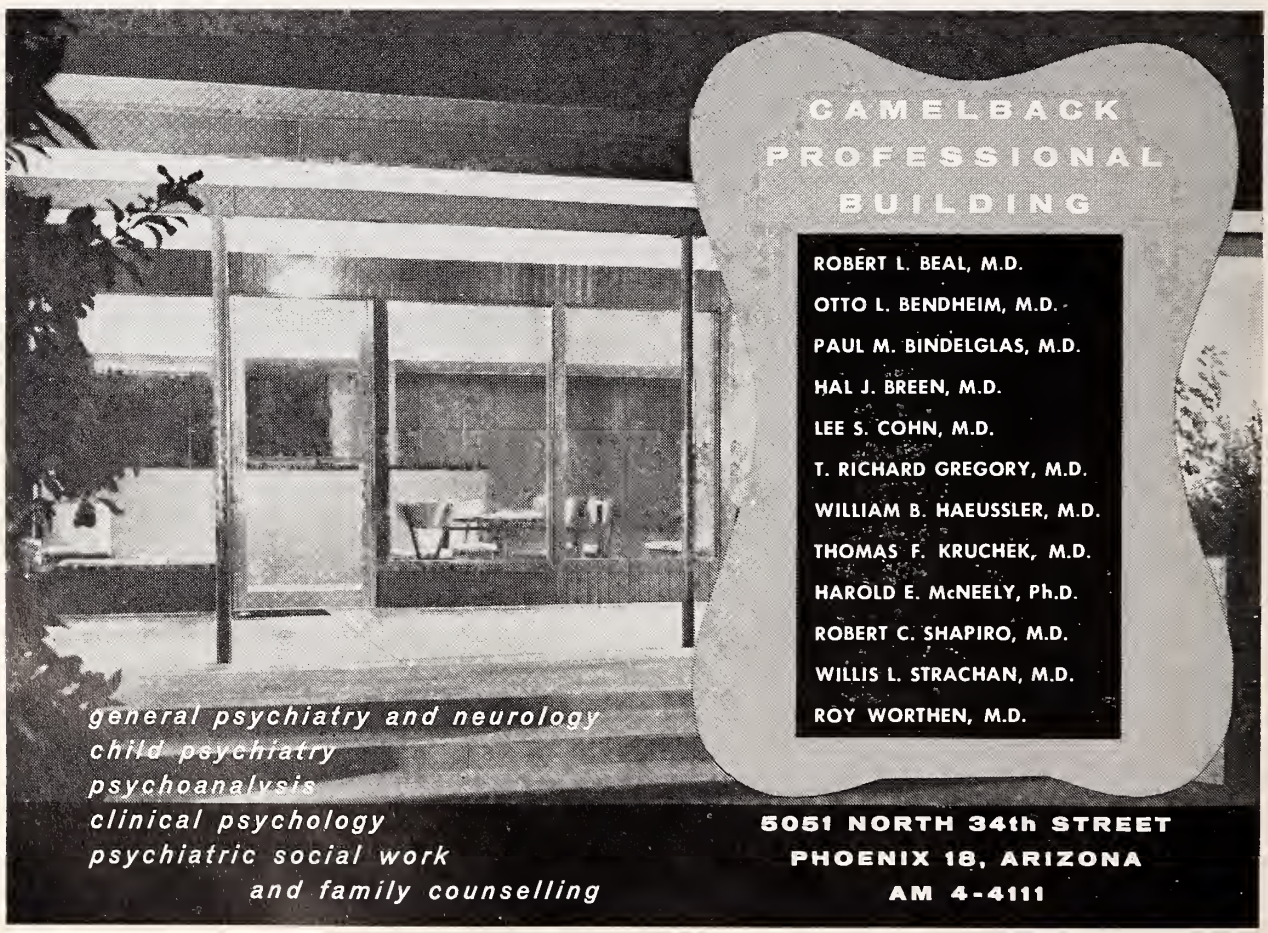
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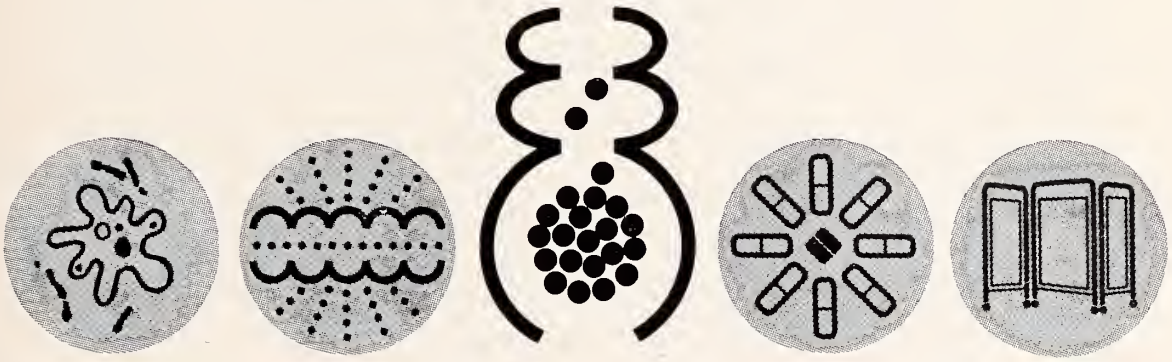
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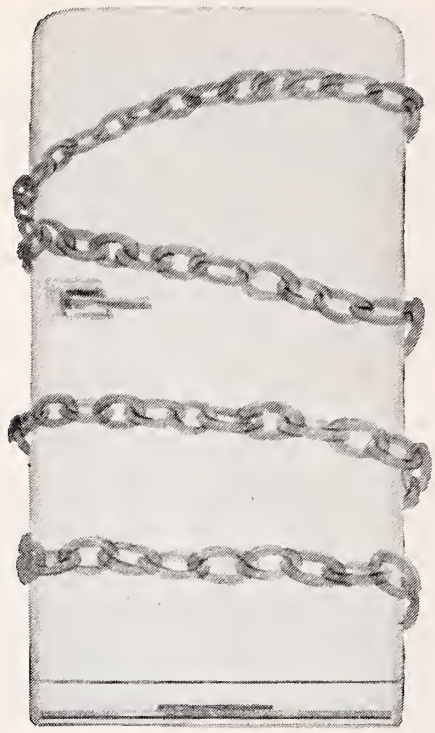
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Description: Each scored tablet contains 5 mg. 'Methedrine' brand Methamphetamine Hydrochloride.

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ARIZONA HIGH SCHOOL STUDENT WINS AMA AWARD AT SCIENCE FAIR



An 18-year-old Arizona boy, Stephen Hayward Sinclair, a senior at North Phoenix High School, won one of the two "honorable mention" citations presented by the American Medical Association during the 15th National Science Fair International May 6-9 in Baltimore, Md. He is pictured with Dr. Edward R. Annis, Miami, Fla., AMA President, and his co-winner, Miss Sandra Edfort of Kingston, Pa., at the Health Award Banquet, co-hosted by the AMA, the American Dental Association, the American Pharmaceutical Association and the American Veterinary Medical Association.

His exhibit impressed the judges very much, all of whom are members of the Council on Postgraduate Programs. He was chosen from a field of over 400 student-finalists from the U.S., Canada, South America, Europe and Asia. Doctor Annis presented the citations at the Health Awards Banquet during the Fair.

Mr. Sinclair's exhibit, chosen by a panel of AMA judges, was on "Hibernation vs. Hypothermia" in which he established that hibernation is a determining factor in the life span of the golden hamster.

Stephen is an all-around boy as his biographical sketch issued at the Fair stated: "*Activities:* Science groups, sports, music, scholastic and civic groups, debate, speech, student council, hospital volunteer, Medical Explorer Scout, rocketry club, church groups. *Honors:* National Honor Society, Science Talent Search Winner, AAU swimming and diving teams, speech, sports, Top Ten in nation for 15 - 17 age group swimmers, debate, Bausch & Lomb, Valedictorian, Mu Alpha Theta; Swimming awards include 14 trophies, 96 medals, 298 ribbons . . . *Career:* M. D.

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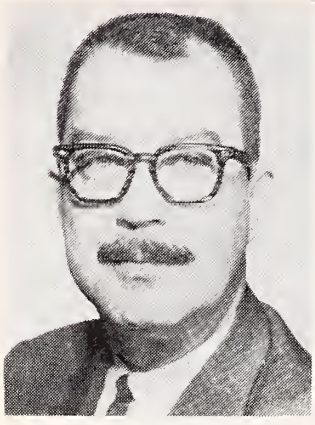
John C. Foster, executive director, Arizona Blue Cross/Blue Shield, was the recipient of the Distinguished Service Award for 1963 annually presented by the South Dakota Medical Association. The award was made June 2nd in Sioux Falls at the annual president's dinner.

Foster, a long-time resident of South Dakota, was one of the founders and first executive director of the South Dakota Blue Shield Plan. He also served for 17 years as the executive secretary of the S. Dak. State Medical Assn., and as executive secretary of the S. Dak. State Board of Medical Examiners.

Along with this, he was the founding executive secretary of the S. Dak. Heart Assn., and at a later date, the founding executive secretary of the S. Dak. Mental Health Assn., and the S. Dak. Public Health Assn. He is presently the national chairman of the Blue Shield Kerr-Mills task force.

Foster is the only layman to ever receive this award from the medical profession in South Dakota.

CONVULSIVE DISORDER UNIT OPENS AT BARROWS



Dr. White

The Barrow Neurological Institute of St. Joseph's Hospital, Phoenix, has announced the appointment of Philip T. White, M. D., as Director of the new Convulsive Disorder Unit.

The Convulsive Disorder Unit has as its primary purpose appraisal of the epileptic. It will serve to supplement and complement those services already provided by the community physicians so that the patient under good medical control can find his proper role in the community. Hopefully, the work of the Unit will provide guidelines for schools, employers, families, and community services concerned with the problems of the epileptic.

In addition to Dr. White, who was previously the Professor Neurology at the Indiana University School of Medicine, there will be other staff members including a social worker, health educator, public health nurse, and psychologist.

Initial support for this project is coming from the St. Joseph's Hospital and from the Division of Chronic Diseases, Bureau of State Services of the United States Public Health Service.

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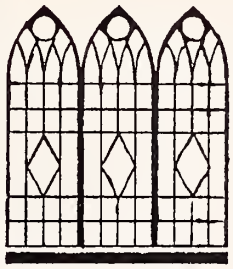
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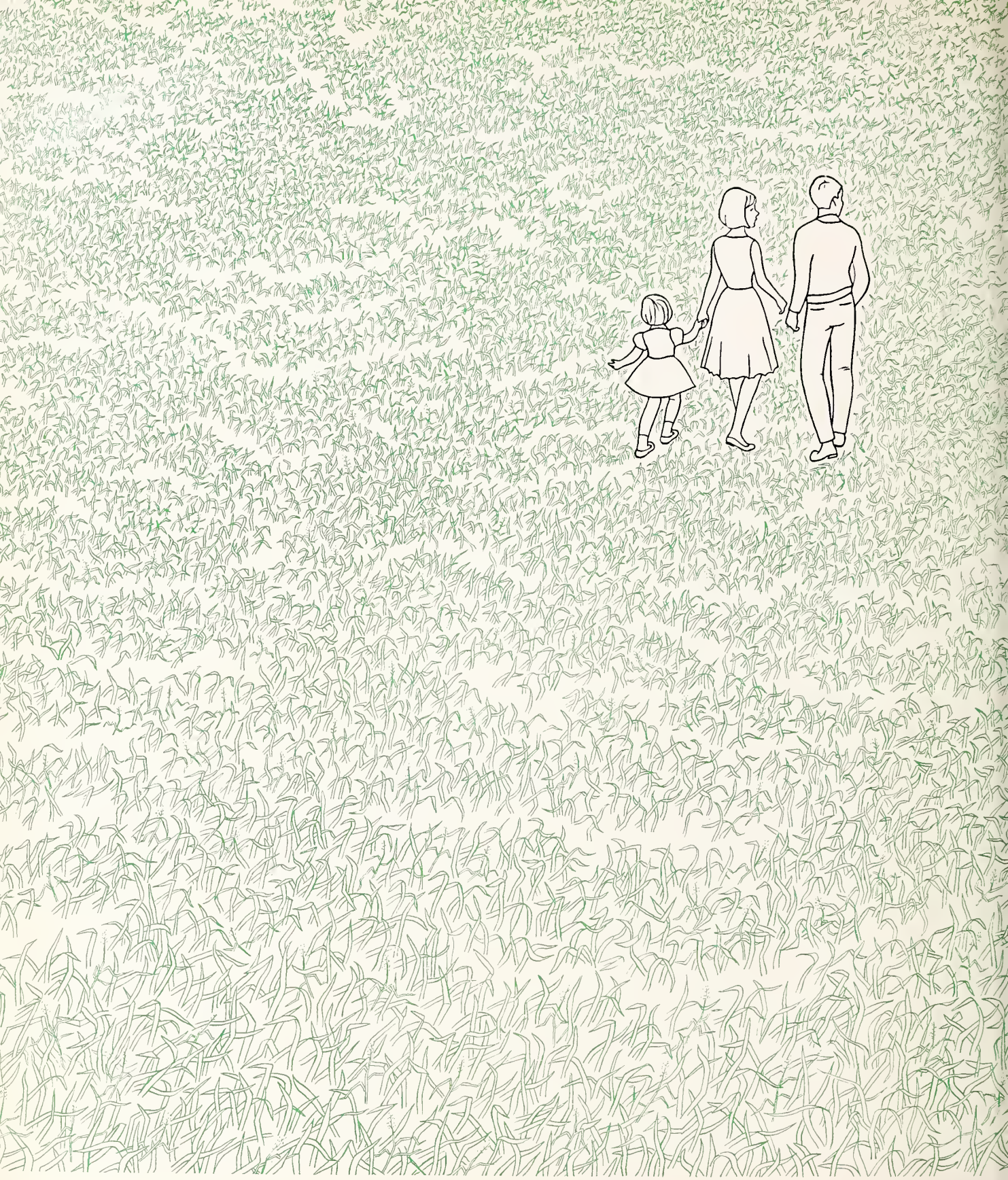
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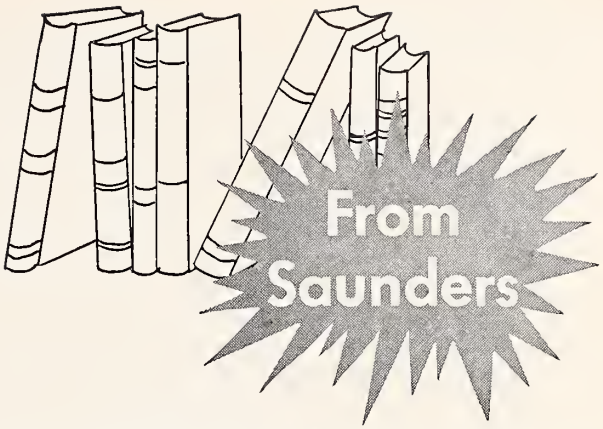
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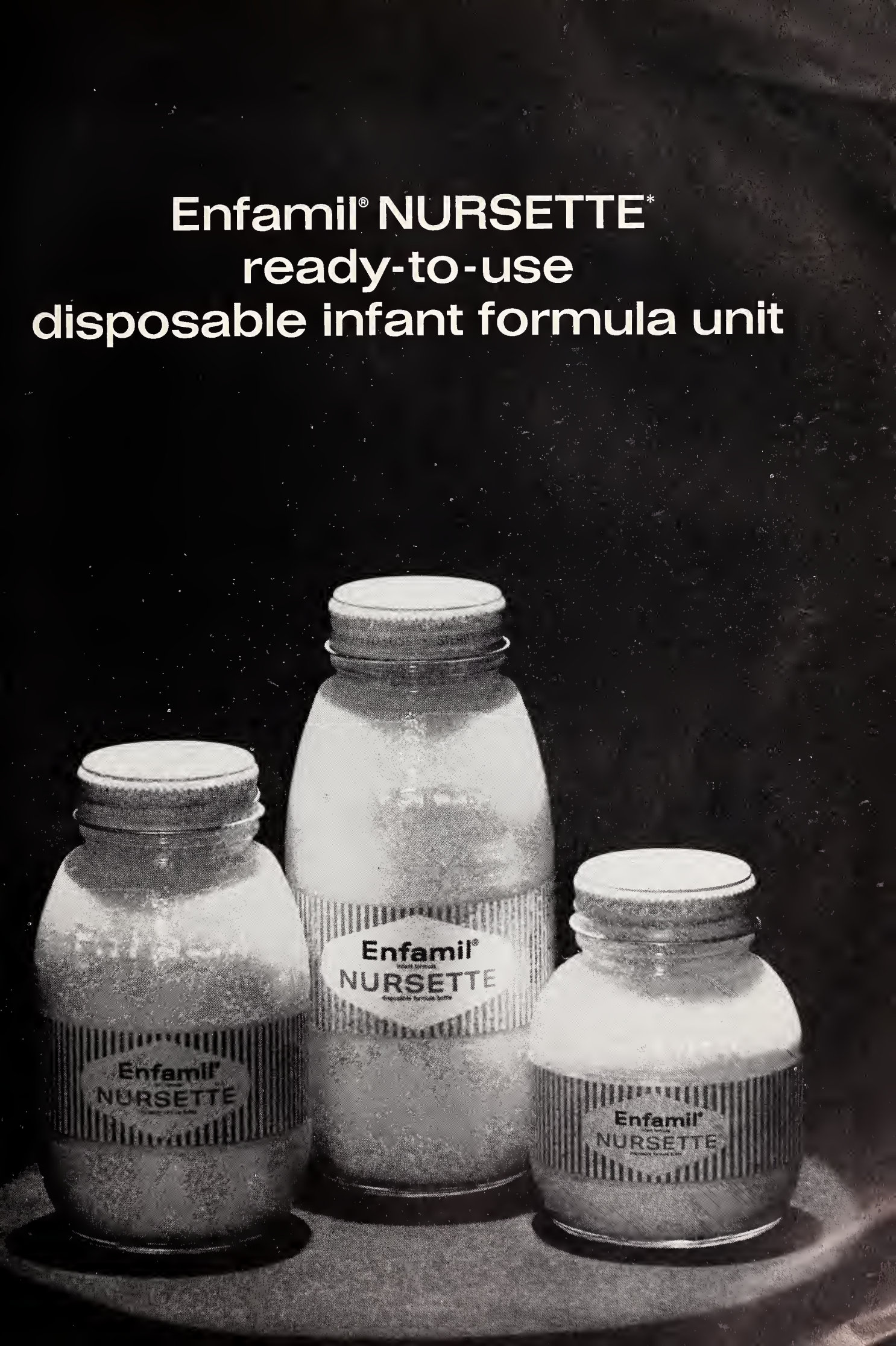
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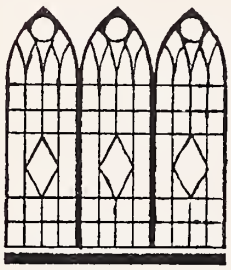


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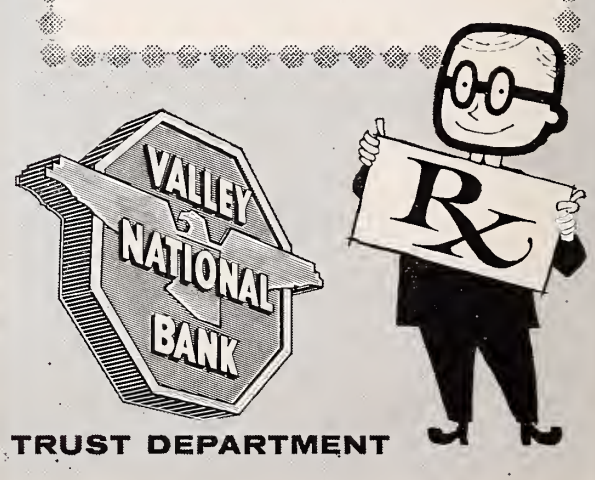
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THE ARIZONA MEDICAL ASSOCIATION, INC.

Organized 1892 — P. O. Box 128, Scottsdale, Arizona

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116 N. Tucson Blvd., Tucson, Arizona

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NOTE: The President, President-elect and Secretary are ex-officio members of all committees unless otherwise specified.

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(Society Office — 2025 N. Central Avenue, Phoenix)

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(Society Office — 2555 East Adams Street, Tucson)

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Complete officer and committee listings will appear in the December issue.

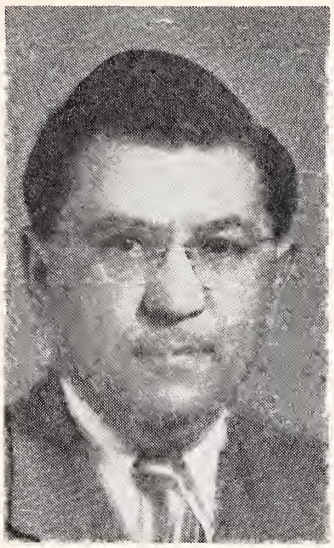
BOARD OF MEDICAL EXAMINERS' APPOINTMENTS

The Honorable Paul Fannin, Governor, has announced the appointments of Melvin W. Phillips, M.D. and Howard W. Finke, M.D., for terms of five and four years respectively, to the Board of Medical Examiners of the State of Arizona replacing Francis M. Findlay, M.D. of San Manuel and Arthur H. Dysterheft, M.D. of McNary.



Dr. Phillips

Doctor Phillips, a native of Illinois, received his Doctor of Medicine degree in 1943 from the School of Medicine of the McGill University; served as a Captain in the United States Army Medical Corps from 1944 to 1949. Licensed in Arizona in 1948, he began the general practice of medicine in Prescott in 1949, maintaining active membership in the Yavapai County Medical Society, Arizona Medical Association and A.M.A. to date and served as President of this Society in 1952. Held in high esteem by his colleagues and the entire community, Doctor Phillips' term with the Board of Medical Examiners will expire on June 30, 1969.



Dr. Finke

Doctor Finke received his Doctor of Medicine degree from the School of Medical Evangelists. in 1938. Born in Monroe, Washington, he was commissioned in the United States Navy Medical Corps with the permanent grade of Lieutenant in 1943; received his Honorable Discharge in 1946 and his Arizona license to practice medicine in 1952, beginning his practice in Superior in 1954. Dr. Finke has served in many capacities in the Pinal County Medical Society and the Arizona Medical Assoeiation, as an active member of each, and A.M.A. He is Chief Surgeon at Magma Hospital in Superior and a recognized eommunity leader both in and out of medicine. His term with the Board of Medical Examiners will expire on June 30, 1968.

The complete membership of the Board of Medical Examiners for 1964-65, together with Doctor Phillips and Doctor Finke, will include W. R. Manning, M.D., (Tucson); Carlos C. Craig, M.D., (Phoenix) and Roy O. Young, M.D., (Scottsdale).

AD HOC COMMITTEE FOR ARIZONA TERRITORIAL MEDICINE PUBLICATION

Meeting of the Ad Hoc Committee for Arizona Territorial Medicine Publication of The Arizona Medical Association, Inc., held Tuesday, April 28, 1964, at the San Marcus Hotel, Chandler, Arizona, convened at 4:00 p.m., W. Albert Brewer, M.D., President-Elect and Chairman, presiding.

ROLL CALL

PRESENT: Drs. Brewer, W. Albert, President-Elect and Chairman, Schoen, Roland F., Steen, William B., President. Miss Quebbeman, Frances. **Advisory Members to the Committee:** Mesdames McNamee, Dorothy (Tucson), Stevens, Weir C. (Ray).

EXCUSED: Drs. Bledsoe, Nelson C., Carter, Allan B., Henderson, Charles E., Secretary, Kennedy, John W.

MINUTES

Minutes of the initial meeting of the Ad Hoc Committee for Arizona Territorial Medicine Publication of this Association held January 26, 1964, were approved as published and circulated among the members.

PROGRESS REPORT

A detailed discussion of the make-up of the proposed book on Territorial Medicine in Arizona was considered. Tentatively, the book will be divided into three parts, composed of eight chapters. A detailed breakdown of this format was submitted.

Title of the book was discussed and tentatively approved as "Territorial Medicine in Arizona."

The Committee also expressed satisfaction with the progress made by Miss Frances Quebbeman since its last meeting, January 26, 1964. It was determined that the next meeting will be held some time in January, 1965.

MEETING ADJOURNED AT 5:30 P.M.

Charles E. Henderson, M.D.
Secretary

SCIENTIFIC ASSEMBLY COMMITTEE

Meeting of the Scientific Assembly Committee of The Arizona Medical Association, Inc., held Sunday, June 14, 1964, in the Central Offices of this Association, Suite 211, UR Building, 4533 North Scottsdale Road, Scottsdale, Arizona, convened at 10:18 a.m., Richard L. Dexter, M.D., Chairman, presiding.

ROLL CALL

PRESENT: Drs. Brewer, W. Albert, President, Currin, John F., Derickson, Philip G., Dexter, Richard L., Chairman, Eddy, Jr., Warren D., Gregory, T. Richard, Henderson, Charles E., Secretary, Jarrett, Paul B., Vice-President, McMoran, Charles W., Phillips, Melvin W. **Staff:** Boykin, Paul R., Assistant Executive Secretary, Carpenter, Robert, Executive Secretary, Robinson, Bruce E., Executive Assistant.

EXCUSED: Drs. Carlson, John S., Heim, Delmer J., Jackson, Jr., Ralph A., Knight, Frederick W., Mason, Robert P., Moody, Deward G., Nelson, Arthur R., O'Hare, James E., President-elect, Sattenspiel, Edward.

MINUTES

On motion regularly made and unanimously carried, the minutes of the meeting of the Scientific Assembly Committee held January 26, 1964, were approved as printed and circulated among the membership.

ORGANIZATION

On motions regularly made and unanimously carried in each instance the following members were duly nominated and appointed to the positions indicated:

Assistant Chairman: Arthur R. Nelson, M.D.; Secretary: Charles E. Henderson, M.D.; Publicity Chairmen: Richard L. Dexter, M.D., Chairman, Arthur R. Nelson, M.D., Assistant Chairman.

ANNUAL MEETINGS

The annual meetings of this Association have been scheduled for the years 1965 and 1966 as follows:

74th — Pioneer Hotel, Tucson, April 28 through May 1, 1965 (confirmed).

75th — Safari Hotel, Scottsdale, April 27 through April 30, 1966 (confirmed).

Consideration should be given to the location of the 76th Annual Meeting to be held in 1967. Inasmuch as the location will depend largely upon whether or not exhibits are to be continued, action in this regard was deferred.

74th ANNUAL MEETING — 1965

On motions regularly made and unanimously carried, the following determinations were made associate with the 74th Annual Meeting of the Association to be held in Tucson, Arizona, April 28 through May 1, 1965, with headquarters at the Pioneer Hotel:

1) Association Board of Directors meeting Tuesday evening, April 27, 1965.
2) Blue Shield corporate meeting, First Regular Session, immediately following the General Session of the Association to be held Wednesday, April 28, 1965, in the morning.
3) Association House of Delegates First Regular Session to be held Wednesday, April 28, 1965, immediately followed by the General Session of the Association.
4) Association-Blue Shield joint reception and supper to be held Wednesday evening, April 28, 1965, suggesting a repeat of the Mexican atmosphere and food provided during the 72nd Annual Meeting in Tucson with Mariachis as entertainment.
5) Association Reference Committee meetings to be held Wednesday and/or Thursday afternoons, April 28 and 29, 1965, after 3 p.m. Blue Shield corporate body reference committee meetings to be held Friday afternoon, April 30, 1965, after 3 p.m.
6) Association annual golf tournament to be held Wednesday afternoon, April 28, 1965, Fred H. Landeen, M.D. (Tucson), Chairman; he to select membership of his committee. No financial assistance to be given by the Association, the Chairman to be so informed. Trophies and other prizes to be obtained by donation or covered by event fees.
7) Association annual bowling tournament to be held Wednesday afternoon, April 28, 1965, Warren D. Eddy, Jr., M.D. (Tucson), Chairman; he to select membership of his Committee. No financial assistance sought nor to be given, the Chairman to be so informed. Trophies and/or gifts to be purchased from event fees received.
8) Blue Shield corporate meeting, Second Regular Session, to be held Saturday morning, May 1, 1965, immediately following the Second Regular Session of the Association House of Delegates meeting.
9) Association House of Delegates Second Regular Session to be held Saturday morning, May 1, 1965.
10) Thursday evening, April 29, 1965, to be considered an "open" night with no scheduled events by the Association. This does not preclude events to be scheduled, such as dinner meetings as may be desirable by the specialty groups with Committee approval.
11) Association President's Reception and Dinner Dance to be held Friday evening, April 30, 1965, suggesting a repeater "Music by Tiny Fortman's Orchestra." It was suggested as entertainment

that possibly arrangements could be effected, with the assistance of the Women's Auxiliary, to provide professional ballroom dancing, either through the Arthur Murray or Fred Astaire studios of Tucson.

12) Association registration fees: While action was deferred, it was suggested that members in practice less than five (5) years — $10.00; all others — $15.00.

13) Association provision for scientific exhibits to be continued. The displays this year, in numbers and quality, were very favorably received. It was determined to continue the Aesculapius Award by Mead Johnson Laboratories (a plaque and $200.00 cash award); however, in the event Mead Johnson does not choose to continue the award, then the Association will continue such award to the extent of providing an appropriate plaque.

14) Association technical exhibits may be continued in 1965; however, it is suggested that all those participating be informed sufficiently in advance, affording each opportunity to make an early decision as to whether or not it is their intent to participate.

15) Following lengthy discussion and submission of suggestions, it was determined to continue commercial exhibits for the 1965 Meeting. The fee of $150.00 established will be charged in 1965. Attendance awards will be dispensed with. While it has been custom to invite the exhibitors and their ladies as guests of the Association to attend the Wednesday evening reception and supper, it is determined for 1965 that they be similarly invited; however, at a fee to be determined upon covering the appropriate cost.

16) Accommodations desired by the Women's Auxiliary are to be amicably provided.

17) Category I Credit-American Academy of General Practice is to be continued on application through Doctor John S. Carlson.

18) Special dispensation at the time of the President's Dinner Dance, Friday, April 30, 1965, is expressed desirable and will again be sought through the efforts of Doctor Warren D. Eddy, Jr.

19) Considerable discussion ensued regarding the fee of $150.00 established by the Board of Directors of the Association to be charged specialty groups holding luncheon or dinner meetings, using a guest orator provided and participating in the scientific section of the annual meeting program. This year the Arizona Society of Pathologists were concerned, as expressed in letter dated May 13, 1964, presented and read, where, in addition to the fee paid the Association, an "honorarium" was contributed by that Society.
It has been the policy, during the past several years, for the Association to pay transportation for both the Doctor and his wife, if she accompanies him to the meeting, together with all other expenses associate with the trip, including hotel room and board during the meeting, in addition to incidentals. It appears customary always to find one guest who will charge everything to the Association, including horseback riding, hiring of a car for side trips, etc. It was determined to defer action pending the establishment of the scientific section program; however, it was suggested that the Chairman communicate with the specialty society groups to ascertain their views in this regard, and obtain any suggestions they might have as to arrangements which might be mutually agreeable to be followed in future meetings.

20) Association General Session program having been established to be held Wednesday morning, April 28, 1965, immediately following the First Regular Session of the Association House of Delegates meeting, it was determined to follow the usual format: call to order by the President; invocation, the Pastor to be selected by the incoming President; memorial service to be conducted by the Pastor; welcome by the Pima County Medical Society President; response by a member of the Navajo or Apache County Medical Society; introduction of distinguished guests (to be determined but to include the Mayor of Tucson); introduction of the incoming President; and President's address.

21) Association scientific section program: it was determined, with the change in the General Session pattern over previous years to be held Wednesday morning, April 25, 1965, immediately following the First Session of the Association House of Delegates meeting, that Thursday, April 29, 1965, and Friday, April 30, 1965, be devoted to the scientific section program. It is anticipated there will be specialty luncheon meetings to be scheduled. In accordance with previous action of the House of Resolution adopted in 1963, at least one speaker from each of the major fields, i.e., internal medicine, surgery, obstetrics and gynecology, and pediatrics, shall be included.
It was the consensus that the meeting should again be built around and with the general practice in mind. Certainly panel discussion programs continue most favorably received and attract good audiences. Panel breakfast meetings will be continued, to be held Thursday and Friday. While discussion ensued, holding more than one scientific session conducted at the same time, it is realized that this might affect attendance, good or bad. It was further suggested that, following specialty group luncheon meetings, additional panel discussions might be scheduled for the afternoon commencing at 3 p.m.
The afternoon session was devoted to consideration of subjects or themes to be carried out during the 1965 scientific section program. Subjects such as "Crash Injuries;" "Infectious Diseases;" "Pulmonary Diseases;" "Aviation Medicine;" "Outer Space Medicine;" and "Accidental Injury" were discussed. Favor leaned toward "Accidental Diseases."

Suggesting the theme might be "Accidents — Our Number One Public Health Problem," this would be a field in which the insurance companies are vitally interested and might well provide speakers. "Athletic Medicine" could be incorporated therein and, here again, the AMA is playing an increasingly important part and is interested in this field. It was determined to explore this potential and possibly present something more specific at the next meeting. It is understood the Chairman will present a program outline for review of the Committee and action at the next meeting.

MEETING ADJOURNED AT 3:15 P.M.

Charles E. Henderson, M.D.
Secretary

ARIZONA MEDICAL SCHOOL
RESOLUTION NUMBER SIXTEEN

This resolution was introduced by Dermont W. Melick, M.D., at the 1964 annual meeting of the Arizona Medical Association and was adopted by the House of Delegates May 1, 1964

WHEREAS, the University of Arizona is now in the beginning phase of the establishment of of a medical school for the State of Arizona, and

WHEREAS, the citizens of the State of Arizona through their duly elected representatives in the legislature have seen the wisdom of appropriating initial monies for the beginning phase in the establishment of the medical school, and

WHEREAS, the Board of Regents of the universities and state colleges of the State of Arizona have voted in favor of the establishment of a medical school at the University of Arizona in Tucson, Arizona, and

WHEREAS, it is confidently predicted that the establment of a medical school will bring about an increasing excellence in the medical care of the citizens of the State of Arizona, and

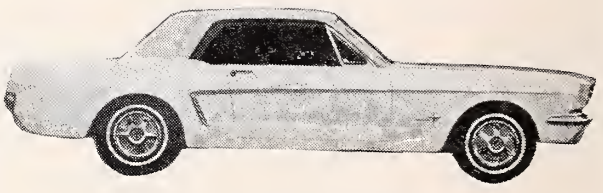
WHEREAS, the medical school will offer to the physicians of the State of Arizona a chance to be apprised of the latest scientific advances in the field of medicine, therefore be it

RESOLVED, that the Arizona Medical Association go on record as commending the efforts of individuals, groups, foundations, organizations, research institutes, educational institutions and others who are working diligently to bring about a successful accomplishment of the goal of establishing a medical school in Arizona at the earliest feasible date, and be it further

RESOLVED, that the Arizona Medical Association recommend to its members that they give their full and unqualified support to the concept of a medical school the establishment of which shall be carried forward with all due haste and speed within the bounds of careful, sound, conscientious and meticulous planning, and be it further

RESOLVED, that the Arizona Medical Association make a special plea to each member of the Association to participate in this effort in an individual manner in order that the final goal may be one which mirrors an accomplishment which reflects a unanimous and undivided support of the Arizona Medical School.

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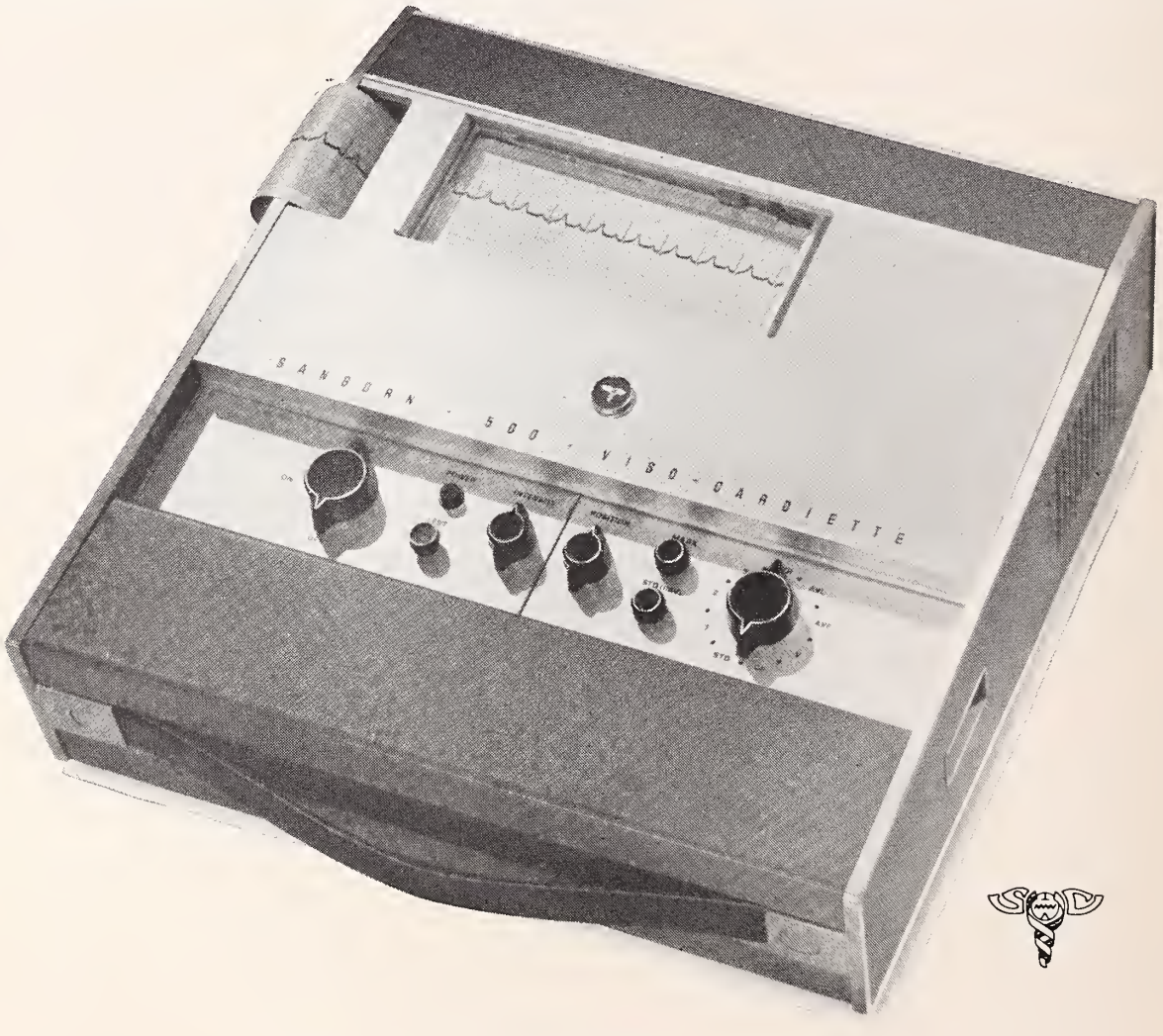
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The clear and consistent therapeutic benefits of Pro-Banthine (propantheline bromide) have made it the preferred anticholinergic for the past decade.

During that time, many compounds have been developed and proposed as alternatives. In the appraisal of Roach[1] "... few, if any, have seemed to offer a distinct improvement, ..."

Early investigations showed that Pro-Banthine (propantheline bromide) reduces motility and acid secretion and may be used in a wide range of dosage, to bring prompt, positive anticholinergic benefits to patients with peptic ulcer, spastic colon, pylorospasm and related gastrointestinal dysfunctions.

Recent evaluations sustain these earlier judgments. In a current authoritative assessment based mainly on the factors of potency, superiority to atropine, clinical experience and physiologic study, Steinberg and Almy[2] select as the first two preferred anticholinergic drugs, methantheline [Banthine] and propantheline [Pro-Banthine].

The name Pro-Banthine (propantheline bromide) sets a stamp of therapeutic authority on any anticholinergic prescription.

Side Effects and Precautions—Urinary hesitancy, xerostomia, mydriasis and, theoretically, a curare-like action may occur. The drug is contraindicated in patients with glaucoma or severe cardiac disease.

Dosage—The usual adult dosage is one tablet of 15 mg. with meals and two at bedtime; this amount may be doubled or tripled for patients with severe conditions. Pro-Banthine (brand of propantheline bromide) is supplied as tablets of 15 mg. and, for parenteral use, as serum-type ampuls of 30 mg.

SEARLE

Chicago, Illinois 60680

Research in the Service of Medicine

1. Roach, T. C.: Therapy of Peptic Ulcer, J. Louisiana Med. Soc. *115*:136-139 (April) 1963.
2. Steinberg, H., and Almy, T. P., Drugs for Gastrointestinal Disturbances, Chapter 21, in Modell, W. (editor): Drugs of Choice —1964-1965, St. Louis, The C. V. Mosby Company, 1964, p. 343.

PYLOROSPASM • BILIARY DYSKINESIA • PANCREATITIS • URETERAL AND URINARY BLADDER SPASM • GASTRITIS

PEPTIC ULCER • FUNCTIONAL HYPERMOTILITY • IRRITABLE COLON



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Dr. Demlow

Treatment of Tetanus Neonatorum

Approach To Therapy In 800 Cases

by

Jack H. Demlow, M.D.

This disease is of frequent occurrence in the West Indies and other underdeveloped countries. This study, undertaken in the West Indies, outlines a treatment program for Tetanus Neonatorum.

Esta enfermedad, es de incidencia comun en Haiti y otros paises poco desarrollados. Este trabajo, emprendido en Haiti presenta un regimen terapeutico para el tetano neonatal.

I. INTRODUCTION

THIS paper is presented to acquaint interested members of the medical profession with one approach to therapy currently being used in the management of Tetanus Neonatorum. The survival and mortality figures accrued over a four year period (1958 to 1961 inclusive) in the management of over 800 patients using this approach, are included in this paper. Since you and I, as physicians in Mexico and the United States, are fortunate enough to face this problem infrequently, it would be difficult for us to accumulate an adequate number of patients in order to evaluate a therapeutic regime in this disease; thus, a brief review of the approach to therapy currently being used might give us some helpful information that we could use should we be confronted with such a patient — with Tetanus Neonatorum.

II. METHODS AND MATERIALS

a) Methods

THE approach to therapy of Tetanus Neonatorum presented in this paper is one used on the Pediatric Service of the Hospital Albert Schweitzer, Deschapelles, Haiti, West Indies. This regime had been worked out over a period of years by the following at this Hospital:

Presented at the annual meeting, The Medical Society of the United States and Mexico, December 5, 1962, Tucson, Arizona.

I. INTRODUCCION

ESTE estudio es presentado para familiarizar a los médicos interesades con los conceptos terapéuticos usados actualmente en el tratamiento del tétano neonatal. Las estadísticas de sobrevivencia y mortalidad acumuladas en un período de 4 años (1958 al 1961) en el tratamiento de mas de 800 casos usando estos conceptos están incluidos en este estudio. Ya que tanto Vds. como yo, médicos de México y de los Estados Unidos de Norte America, tenemos la suerte de no encontrar este problema frecuentemente, sería difícil para nosotros acumular un número adecuado de enfermos para poder evaluar un régimen terapéutico en esta enfermedad; por lo tanto una corta revista de los conceptos actuales que podemos usar nos puede dar información valiosa al confrorntarnos con un caso de Tétano Neonatal.

II. METODOS Y MATERIAL

a) Métodos

LOS conceptos terapéuticos aquí presentados son los usados en el servicio de Pediatría del Hospital Albert Schweitzer, Deschapelles, Haití, y desarrollados por varios años por W. Larimer Mellon, M.D., Florence N. Marshall, M.D., R. C. McGovern, M.D. y Rachel Driver, M.D.

Presentado en la reunión anual de la Sociedad Médica de los Estados Unidos de Norteamerica y México, 5 de diciembre de 1962, Tucson, Arizona.

W. Larimer Mellon, M.D.; Florence N. Marshall, M.D.; Robert C. McGovern, M.D.; and Rachel Driver, M.D.

SUGGESTIONS have been made, on occasion, by heads of pediatric services of several medical schools in the United States, including Bellevue, New York and Tulane, New Orleans. The author of this paper has had no part in the development of this regime, but has been privileged to visit this Hospital for brief periods, over the past five years, to observe and to work with the pediatric patients.

This material is currently unpublished and has been made available by the aforementioned physicians, for this report. The Survival and Mortality figures have been tabulated by Gertrude G. Hawes, R.M.L. of the Hospital Albert Schweitzer.

The patients in this series range in age from two days to twenty-nine days of age — the greatest majority falling between five and nine days of age, at the time of admission to the hospital.

b) Materials

The availability of drugs, oxygen, constant nursing care, twenty-four hours per day and medical supervision of these patients compare very favorably with any hospital teaching school or private institution that I have seen in the United States, despite the location of the Hospital Albert Schweitzer in the relatively isolated area of the sub-tropics — the Artibonite Valley in mountainous, Central Haiti, West Indies. The average census of the Tetanus Neonatorum Ward of this Hospital is approximately fifteen to eighteen patients, actively on therapy at all times.

Bacteriologic studies are available and are done by qualified registered laboratory technicians, when needed for problems of secondary bacterial infections in the treatment of these patients.

III. DISCUSSION OF THERAPY

Perhaps the best approach to discussion is simply to review a full "set of orders" that would be written on admission of an average patient. These are listed as follows:

A. If the patient is very cyanotic and convulsive on admission:

1— 15 mgm. Nembutal (Abbott) I.M.— Stat

2— 0.5 cc. Thorazine — Chloropromazine

SUGESTIONES han sido ofrecidas en ocasiones por los Jefes de Petdiatría de varias Escuelas de Medicina en los E.U. de N.A. incluyendo Bellevue, New York, y Tulane, New Orleans. El autor de este estudio no ha tenido parte en el desarrollo del régimen pero ha tenido el privilegio de visitar esta Hospital por cortos períodos en los ultimos 5 años y observar y trabajar en el servicio de Pediatría.

El material usado aquí no ha sido publicado y ha sido ofrecido por los doctores mencionados para este estudio. Las estadísticas han sido preparadas por Gertrude G. Hawes, R.M.L., de dicho Hospital.

Los enfermos en esta serie varian en edad de 2 a 29 días, la mayor parte entre 5 y 9 días de edad en el dia de entrada al hospital.

b) Material

El acceso a drogas, oxígeno, servicio de enfermera 24 horas al dia y supervisión medica de estos enfermos se compara favorablemente con cualquier hospital privado o de Escuela Médica que yo haya visto en Norte America a pesar de lo aislado que está el Hospital Albert Schweitzer en el trópico, el valle de Artibonite en las montañas de Haití central. El promedio del censo diario en la sala de Tétano Neonatal es aproximadamente de 15 a 18 enfermos bajo tratamiento activo todo el tiempo.

Estudios bacteriológicos son posibles y hechos por Técnicos expertos cuando son necesarios en casos de infección secundaria para el tratamiento de estos enfermos.

III. DISCUSION DEL TRATAMIENTO

Quizás el mejor acceso a la discusión será revisar las "órdenes" escritas, al admitir el enfermo:

A. Si el enfermo está cianótico y con convulsiones:

1 — 15 mgm. Nembutal (Abbott) I.M. — Stat

2 — 0.5 cc. Thorazine, Cloropromazina, (Smith, Kline-French) I.M. — Stat

3 — 3 L de Oxígeno / min. por catéter o máscara

4 — Baño de esponja tibio, para la fiebre.

5 — Cafeina 0.1 cc. I.M. si hay paro respiratorio.

B. Si en enfermo no tiene convulsión, llora bien y chupa en ocasiones:

1 — Tolserol (Squibb Mephenesin) 10 gotas (15 mgm.) oralmente cada 6 horas.

(Smith-Kline-French), I.M.—Stat

3 — 3 liters of O^2 through nasal catheter or by mask.

4 — Tepid sponges — p.r.n. fever

5 — Caffeine Sodium Benzoate, 0.1. cc. I.M. p.r.n. for severe respiratory arrest.

B. If the infant not very convulsive — has a good cry — sucks occasionally:

1 — Tolserol (Squibb Mephenesin) 10 gtts. (15 mgm.) p.o.q. 6 h.

2 — Largactil (France-Chloropromazine) 12 gtts. (12 mgm.), p.o.q. 6 h.

3 — Elix Phenobarbital, 1 tsp. q 6 hours p.o.

4 — Nembutal, I.M. — 19 mgm. q 6 hours for severe convulsions

5 — Caffeine Sodium Benzoate, 0.1 cc, I.M. p.r.n. for severe respiratory arrest.

C. All patients receive in addition to either "set" of above orders:

1 — Tetanus Antitoxin, 80,000 Units, I.M. (divided into several injection sites).

2 — Aqueous Penicillin, 300,000 units, I.M. — Stat and Procaine Penicillin, 300,000 Units, I.M. — Stat

3 — 300,000 Units Procaine Penicillin, I.M. q day for 2 weeks.

4 — Clean umbilical stump — first with alcohol — then with dry, sterile applicator — then — keep dry, removing dried blood for crusts, gently, every other day.

5 — Whole milk (powdered whole milk) starting with one-half to one ounce every four hours during the first week, through polyetheylene tubing.

6 — If infant is very cyanotic, in respiratory distress and has vomited three consecutive feedings — then discontinue all feedings and oral medications and give the following over the next twelve hour period:

a) Clysis of 150 cc. of ½ 5% G-W — ½ N/S with 5 cc. of Tolserol + 3 mgm. of Largactil added to the total 150 cc.

b) Resume previous orders after 12 hours, if the physician feels that

2 — Largactil (Chloropromazina, Francia) 12 gotas (12 mgm.) cada 6 horas vía oral.

3 — Elíxir de Fenobarbital 5 c.c. cada 6 horas. Vía oral.

4 — Nembutal 10 mgm. I.M. cada 6 horas si hay convulsión

5 — Cafeina 0.1 cc. I.M. si hay paro respiratorio.

C. Todos los enfermos reciben además:

1 — Suero antitetánico. 80,000 Unidades I.M. (divididas en varios sitios).

2 — Penicilina acuosa; 300,000 U. I.M. — Stat y Penicilina Procaina 300,000 U. stat.

3 — Penicilina Procaina, 300,000 U. diarias por 2 semanas.

4 — Limpieza del muñón umbilical, primero con alcohol, después con aplicador estéril, y mantener el muñón limpio quitando las costras cada dos días.

5 — Leche entera (polvo) empezando con ½ a 1 onza cada 4 horas la primera semana por medio de tubo poletilénico.

6 — Si el enfermo está muy cianótico, con dificultad respiratoria y ha vomitado 3 veces consecutivas — se discontinúa la alimentación y las medicinas orales y se administra lo siguiente por las próximas 12 horas:

a) Clisis de 150 cc. de mitad de 5% Glucosa en agua y mitad de solución salina fisiologica con 5 cc. Tolserol y 3 mgm. de Largactil.

b) Resumir las órdenes previas después de 12 horas si la condición del enfermo es satisfactoria.

7 — Si el enfermo está muy agotado y presenta convulsiones débiles y paros respiratrios frecuentes, — se usa Oxígeno y se discontinúan todos los sedantes y relajantes musculares hasta que el estado general haya mejorado.

8 — Si hay paro respiratorio se comienza inmediatamente la respiración artifical que se mantendrá hasta comenzar la respiración espontánea.

the patient's condition is satisfactory to do so.

7 — If infant is limp and has long and frequent respiratory arrests and weak convulsions — then — use additional O^2 and discontinue all sedation and muscle relaxants until infant's condition has improved.

8 — Upon respiratory arrest — institute prompt, but gentle artificial respiration and maintain same until spontaneous respiration resumes.

IN addition to the above "set of orders", Streptomycin, 40 mgm./kg. is being given I.M. divided into q 12 hours dosage on admission and continued for one week to all infants, to eliminate any gram negative omphalitis.

All medications are eliminated by the end of the first two weeks — or as soon thereafter as the patient's condition permits.

Obviously, many other medications are used on a given patient in the course of this illness to combat other problems, for example secondary infection and malnutrition. These are frequent, as one would expect in a patient living in poverty in the sub-tropics and, undoubtedly, have some effect on mortality. Since this paper is concerned only with the therapy of the basic disease, Tetanus, details of these additional problems that are peculiar to the geographic location of the patients, are omitted.

Summarizing the basic fundamentals of the preceding "orders", one sees that therapy is simply the judicious use of a combination of the following:

a) Sedatives
b) Muscle Relaxants
c) Chloropromazine
d) Tetanus Antitoxin
e) Antibiotics
f) Constant, expert, nursing care by those nurses or nurses aides with experience and good judgment.

IT is not uncommon for one to have an infant in severe respiratory arrest, frequently. However, with artificial respiration given properly by well trained personnel, from five to fifteen minutes, the infants usually resume spontaneous respirations without too much difficulty.

Twenty-four hour, constant, nursing care by two or more trained nurses or nurses aides is of prime importance.

Se administra además de las "órdenes" ya mencionadas 40 mg. de Estreptomicina por Kg. I.M. cada 12 horas durante una semana para evitar la onfalitis por bacterias Gram Negativas.

Todas las medicinas son descontinuadas al fin de dos semanas o tan pronto lo permita el estado del enfermo.

Desde luego, otras medicinas son administradas en el curso de la enfermedad para combatir otros problemas como infecciones secundarias y el marasmo. Estas son frecuentes como es de esperar en enfermos que viven en extrema pobreza y esto influye la mortalidad. Como este estudio está dedicado solamente al tratamiento de la enfermedad básica, Tétano, los otros problemas peculiares al lugar geográfico del enfermo serán omitidos.

Sumarizando los fundamentos básicos de las "órdenes mencionadas" es facil ver que la terapia consiste simplemente en el uso cuidadoso de una combinación de lo siguiente:

a) Sedantes
b) Relajantes musculares
c) Cloropromazina
d) Suero antitetánico (Antitoxina)
e) Antibióticos
f) Cuidado constante y experto por enfermeras con experiencia y buen sentido común.

No es raro encontrarse con un enfermito sufriendo de paro respiratorio severo. Sin embargo con el uso de la respiración artificial bien administrada por 5 a 40 minutos los enfermos recuperan la respiración espontánea sin mucha dificultad.

El cuidado constante las 24 horas por enfermeras o ayudantes es de prima importancia.

IV RESULTADOS — SOBREVIVENCIA Y MORTALIDAD

1958

Casos 24
Varones — (69) - o—56%
Hembras — (55) - o—44%
Mejorados - 76 o 61%
Muertos - 48 o 39%

1959

Casos 189
Varones — (93) - o—49%
Hembras — (96) - o—51%
Mejorados - 81 o 48%
Muertos - 98 o 52%

IV. RESULTS — SURVIVAL AND MORTALITY

1958

Total Cases 124
Male(69)—or—56%
Female ..(55)—or—44%
Improved .76—or—61%
Expired ...48—or—39%

1959

Total Cases 189
Male(93)—or—49%
Female ..(96)—or—51%
Improved . 81—or—48%
Expired ...98—or—52%

1960

Total Cases 231
Male ...(117)—or—51%
Female .(114)—or—49%
Improved .. 111—or—48%
Expired ..120—or—52%

1961

Total Cases 269
Male ...(138)—or—51%
Female .(131)—or—49%
Improved 104—or—39%
Expired ..166—or—61%

FOUR-YEAR AVERAGE

Total Cases 813
Improved 45.6%
Expired 54.4%

IT is felt that the increase in mortality in 1961, in part, may be due to two factors:

1) In the years, 1958, 1959, and 1960, most of the infants admitted to the Hospital were brought in from the immediate "District", (an area in the immediate vicinity of Hospital Albert Schweitzer). As the word of the Hospital and its care has spread among the Haitian people more of the infants in 1961 were brought to the Hospital for admission from "Out of the District" — that is, from greater distances from the Hospital. These patients were in greater distress and further advanced at the time of their admission. This is shown by the following group of figures, noticing particularly that 30% of the patients in 1961 were from "Out of District" as compared to 16% in 1960:

	"In District Patients"	"Out of District Patients"
1958	85%	18%
1959	92%	8%
1960	84%	16%
1961	70%	30%

2) The other possible factor that some of the physicians feel may play a part, is that they may have become "too cautious" with the feedings over a long period. They currently feel that after the first three to four days, feeding with whole milk (powdered whole milk) should be moved

1960

Casos 231
Varones—(117)— o—51%
Hembras - (114) -o- 49%
Mejorados - 111 o 48%
Muertos - 120 o 52%

1961

Casos 269
Varones - (138) - o- 51%
Hembras - (131) - o 49%
Mejorados - 104 o 39%
Muertos - 166 o 61%

PROMEDIO DE CUATRO ANOS

Total de Casos 813
Mejorados 45.6%
Muertos 54.4%

SE cree que el aumento en la mortalidad en 1961 se debe en parte a dos factores:

1) En los 1958, 1959 y 1960 la mayoría de los niños admitidos al Hospital fueron traídos del "Distrito" inmediato, (área en la vecindad del Hospital Albert Schweitzer). Al extenderse la fama del Hospital y del tratamiento entre el resto de la población, la mayoría de los niños durante 1961 vinieron de "fuera del Distrito", esto es, de distancias mas lejanas del Hospital. Estos niños estaban mas enfermos y la enfermedad mas avanzada al tiempo de su ingreso. Esto es mas evidente al examinar el viguiente grupo de números, notándose especialmente que 30% de los enfermos en 1961 fueron de "fuera del distrito" en comparación a 16% en 1960:

	"Distrito"	"Fuera Del "Distrito"
1958	85%	18%
1959	92%	8%
1960	84%	16%
1961	70%	30%

2) Otro posible factor en la opinión de algunos de los médicos es la posibilidad de haber sido "muy cuidadosos" con la alimentación por un periodo muy largo. Al presente son de la opinión que después de los primeros tres a cuatro días la alimentación con leche "entera" (leche en polvo) se debe de aumentar rápidamente a

up quickly to two ounces every four hours. This has been done over the last six months, and the infants seem to be doing better.

V. CONCLUSION

1) An approach to therapy of Tetanus Neonatorum currently in use has been presented.
2) The Survival and Mortality Figures, using this approach in the series of over 800 cases, during a four year period (1958 to 1961) have been presented.
3) In addition, it should be mentioned that the important problem of prophylaxis in this disease is not being ignored, in the area served by the Hospital Albert Schweitzer. There has been for several years, an active program in mid-wifery, immunization of pregnant mothers in the last trimester against Tetanus, and an active immunization program in infants and children.
4) The average number of Tetanus Toxoid injections given to infants and children in the Out-Patient Clinic of Hospital Albert Schweitzer in the month of October, 1962, was 200 per week.

dos onzas cada 4 horas. Esto se ha hecho durante los últimos seis meses y los bebés parecen mejorar mas rápidamente.

V CONCLUSION

1) Conceptos terapéuticos actualmente usados en el tratamiento del Tétano Neonatal han sido presentados.
2) Las estadísticas de sobrevivencia y mortalidad usando esos conceptos en una serie de 800 casos durante un período de 4 años (1958 a 1960) han sido presentadas.
3) Se debe también mencionar que el importante problema de profilaxis de esta enfermedad no ha sido ignorado en la área que sirve el Hospital Albert Schweitzer. Por varios años ha habido un programa actico de educación de partenas e inmunización contra el Tétano de las madres durante el último trimestre de gestación, así como de los infantes y niños.
4) El promedio de inyecciones de Toxoide Tetánico administradas a los infantes y niños en la Clínica del Hospital Albert Schweitzer en el mes de Octubre de 1962 due de 200 por semana.

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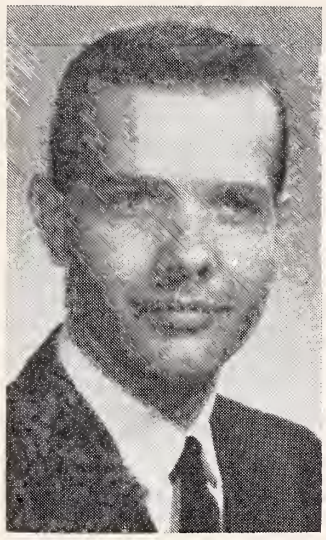
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Dr. Griffith



Dr. Boggs

Heart Disease and Pregnancy
Part III

Postpartal Heart Disease With Reference to Other Unusual Types

by

George C. Griffith, M.D.
Richard P. Boggs, M.D.

To complete the series on Heart Disease and Pregnancy, the authors describe several unusual types of cardiopathy associated with pregnancy with emphasis of the enigma of postpartal heart disease.

I. The Heart in Toxemia and Hypertension in Pregnant Women

THE effects of uncomplicated preeclampsia and eclampsia on the heart during pregnancy are as yet unknown. Similarly, much less is known about the effect of pregnancy on patients with essential hypertension or hypertension associated with kidney disease than its effect on patients with chronic rheumatic heart disease.

From available data, it is believed that the carefully controlled woman with mild essential hypertension takes about the same risk of death in pregnancy as does the the carefully controlled "favorable" patient with rheumatic heart disease. The woman with severe hypertension and an enlarged heart faces a risk approximately as great as does the "unfavorable" cardiac. It is further suggested that women who have essential hypertension and are allowed to continue pregnancy without special precautions have a much higher incidence of toxemia than normal.(1) (2)

Emeritus Professor of Medicine — Cardiology, University of Southern California School of Medicine.
Resident — Internal Medicine, Los Angeles County Hospital, California.

MANY women with uncomplicated mild preeclampsia and eclampsia develop edema of the lungs and an occasional one develops paroxysmal dyspnea, even though the signs of preeclampsia may be mild. Whether this pulmonary edema is the result of left ventricular failure or only another manifestation of the general fluid retention is as yet undetermined. However, pulmonary edema with or without paroxysmal dyspnea is believed to indicate the usual treatment for congestive failure, including digitalization. Recurrent attacks of paroxysmal dyspnea in preeclampia is a dangerous sign and is believed by some to indicate interruption of pregnancy.(1) (3) (4)

II. Postpartal Heart Disease

Much confusion has surrounded the cardiomyopathy termed "postpartal heart disease". Until recently, adequate diagnostic criteria have been lacking, resulting in antepartal and partal conditions being included in this category. Heart disease peculiar to the puerperium was

probably first referred to by Virchow in 1870, when he noted the similarity between idiopathic myocardial degeneration found in women who died in the puerperium and phosphorus poisoning.(5)

SUBSEQUENT reports of postpartal heart disease by Campbell (6) Lennie (7) Herrman (8) Gouley(9) Hull(10,11) and Musser(12) have been somewhat ambiguous in that they included a number of cases of heart disease with the onset of symptoms in the antepartal and partal period. Many of these cases had an etiology referrable to specific disease, especially pre-eclamptic toxemia of pregnancy; nephritis and hypertension of non-toxemic origin. Some had a non-specific myocarditis while others were complicated by pulmonary thrombosis or embolism so as to cast doubt as to whether or not the postpartal period was significant in the etiology.

Musser in a later report(13) suggested that more rigid criteria were needed to define this entity. These included the onset of the syndrome sometime after the 14th postpartal day and the absence of any illness known to produce cardiovascular disease including freedom from any symptoms of cardiac failure prior to delivery. Reid in his report of postpartal heart disease in South Africa,(14) included in addition to the above criteria, freedom from hypertensive retinopathy and absence of albuminuria, granular casts and cells in the urine. These restrictions tend to make the diagnosis of postpartal heart disease less common and by definition eliminates other causes of heart disease which have beclouded this problem in the past.

A. CLINICAL FEATURES

The earliest symptoms usually appear between two to six weeks after partuartion. As a rule the onset is insidious with increasing cough, dyspnea, and pedal edema—the edema gradually increasing in severity and effusions in the serous cavities are frequent. Cardiac enlargement is usually marked, this is associated with a rapid heart rate, low pulse pressure, abdominal and chest pain — usually a tight oppressive sensation. Usually, the diastolic blood pressure is elevated and occasionally both systolic and diastolic pressure are elevated, the latter being most effected. Laboratory data are non-specific. Almost invariably, upon fluoroscopic examination of the heart, a generalized dilatation is described. The electrocardiogram is usually abnormal but not distinctive, demonstrating some left axis deviation, non-specific T wave changes with a prolonged Q-T interval and a tendency to low voltage of the QRS and T waves. Urinalysis is the same as that found in any type of congestive failure. Hemogram and blood chemistries are within normal limits.

ONE characteristic of postpartal heart disease is the refractoriness to treatment. Compensation is usually much more difficult to attain than in the recognized etiological types of heart disease. However, the long term prognosis is good. With the usual regimen for congestive failure, these patients commonly make a complete recovery within two to four weeks. Recurrences with subsequent pregnancies have been encountered in a number of patients. Concerning treatment, it is interesting that many patients with postpartal heart disease exhibit an increased sensitivity to digitalis.(15) This characteristic was directly proportional to the severity of the patient's clinical state.

A number of reports (6,12,14,15) have noted that this syndrome is much more common in the colored race than in the white race; that the majority were multiparous; that the incidence of toxemias and twin births in these patients is higher than usual. Inadequate antepartal medical care and a poor dietary history with malnutrition is often obtained. The reported incidence of embolic phenomenon varies widely, with a high of 25% reported by Hull.(11) Pulmonary embolism occurs more frequently than peripheral embolism and postmortem examinations have shown stasis thrombi in the ventricles.

AT the present time, there is no adequate explanation for the reported regional differences in the incidence and type of postpartal heart disease. Reid(14) reported two sepa-

rate groups of cardiomyopathies found in Africa. Group A from northern, eastern, and western Africa have extensive endomyocardial fibrosis while the cardiomyopathy found in the African from the south is largely free of this fibrosis.(16,17) Clinical and pathological studies(18,19,20) of the south African type emphasize that the endocardial changes that do occur are very different in degree from the gross changes of the northern group.

B. PATHOLOGY

The gross and microscopic pathology in this unusual type of heart disease is not yet fully defined. However, there are some features which are regarded as distinct. Gross examination of the heart shows generalized dilatation with only slight hypertrophy. Ante-mortem thrombi are frequently found enmeshed in the trabeculae carnae. Microscopically, the pathology is characterized by focal and diffuse lesions of parenchymatous degeneration, chiefly swollen, fragmented, disintegrating muscle fibers with lesser involvement of the nuclei. Necrotic foci are numerous with minimal to moderate degrees of cellular infiltration, chiefly lymphocytic. Reference has been made to the clinical similarity of postpartal heart disease and idiopathic or Fiedler's myocarditis.(15) Woolford(21) and other authors (22,23) in their pathologic descriptions of postpartal heart disease emphasize that the microscopic findings were degenerative and NOT inflammatory, and thus distinct from Fiedler's myocarditis. Variations of opinion exist and will require further histological evaluation to resolve this question.

C. PATHOGENESIS

The relationship of pregnancy and the puerperium to this type of heart disease is unknown and speculative. Numerous ideas have been advanced. It is suggested that this condition may represent an atypical hypertensive state resulting from an activated glomerulonephritis or the so-called myocardial failure of essential hypertension. Hull(11) states that the clinical pictures of cardiac beri-beri and postpartal heart disease are identical, if one disregards the neurological features of beri-beri. Could this be another rare type of isolated myocarditis of probable infectious etiology? Detailed information is needed concerning the normal and abnormal physiology of gestation with special reference to nutritional, hormonal, genetic and geographic features and their relationship to the cardiovascular effects of pregnancy. What role is played by the postpartal involutional changes that take place and how is this possibly related to the latent period between delivery and the onset of cardiac disease? It has been suggested that an autoimmune mechanism(15) may be the basis for postpartal heart disease.

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Arizona's History of Surgery Part IV

by

Audrey D. Stevens



MRS. STEVENS

The turn of the century brings a turn to more advanced medicine in Arizona. The first clinical and X-Ray laboratory opens in Phoenix.

CHAPTER III

Late Territorial and Early State Doctors

APPROXIMATELY 1900 Arizona was starting to bloom. Tucson was the largest city, Phoenix was just a mere village and the rest were either mining camps or very small settlements.(1) Hospitals were still provided mostly by the mining companies or the counties.(2) Small hospitals such as St. Mary's in Tucson and St. Joseph's in Phoenix were conducted mostly for medical patients. Both were twelve bed hospitals but St. Mary's Hospital had an operating room shortly after Dr. George E. Goodfellow's arrival in Tucson.(4) (However, after a stay in Tucson Dr. Goodfellow established his own hospital.)(5)

Because of the lack of hospitals most of the surgeons operated at the patient's home on the kitchen table. The doctors carried a pan along with their instruments in their medical bag. The pan was used to sterilize the instruments on the kerosene or wood stove which every pioneer had in his home.(6)

Sterilization was not overly emphasized, to put it mildly, in the late 1890's and early 1900's. To prepare himself for the operation the surgeon would remove his coat, roll up his sleeves, wash his hands with soap and warm water, put on an unsterilized rubber apron (to protect his trousers) and start to operate! None of the post-operative methods used today were used then. For example, after an operation water was withheld for two or three days.(7)

IN 1895 Dr. George E. Goodfellow used spinal anesthesia by use of cocaine. He used the needle approach through the interspinous ligaments rather than the lateral foramina. Dr. Emil C. Houle personally assisted Dr. Goodfellow with two operations in 1910 in which Dr. Goodfellow used spinal anesthesia. (From 1907 until Dr. Goodfellow's death Dr. Houle was his assistant).(8)

Southwestern Medicine published in August, 1924, a paper by Dr. Whitmore in which he states that from 1892 until 1910 he didn't think he gave ether as an anesthetic over half a dozen times but always used chloroform. He had a theory that chloroform did very well around Tucson because of the pure atmosphere and warm climate.(9) Among his papers he had a short resume of his medical life in Tucson and stated that he averaged giving one hundred anesthetics a year over a period of thirty-two years of practice.(10) Chloroform was certainly the choice of anaesthetics. The reason for this was because of the odor and method used in giving the ether. Most often physical force had to

This is the fourth part of a five-part series by the wife of W. C. Stevens, M.D. of Kearney, Arizona.

be used on the patient in order to administer the ether.(11) Another doctor wrote, "Of course there was always the hip flask which the lumberjacks, miners and cowboys always had available."(12)

BEFORE 1909, when Dr. H. D. Ketcherside was a boy in grade school at Yuma, Arizona his father on occasions took him out of school to help on an operation. His brother, Dr. J. A. Ketcherside did the surgery. His father, Dr. E. B. Ketcherside gave the anesthesia (usually chloroform) and Mrs. Wilson acted as scrub nurse. The operations were performed at the Wilson house as there wasn't a hospital at Yuma at that time.(13)

Early in 1910 the drop method of ether became the choice of most anesthetists.(14) Along with the change from chloroform to ether came the idea of better sterilization. To obtain cleanliness for surgery the surgeons used a generous supply of green soap, then immersed their hands in potassium permanganate and followed this with oxalic acid and bichloride of mercury.(15)

Black rubber gloves came into general use. For suture they used cat gut and silk worm gut.(16) The white operating gown took the place of the rubber apron as mentioned in the transcription of a tape I took of Dr. John E. Bacon. To quote Dr. Bason:

IN 1910 I had to open a temporary hospital. It was just a cottage and I had to do a little remodeling. I had two nurses straight from a New York hospital. They thought Miami was a good place and that there must be a lot of unattached males. One was Miss Moran, Irish, redheaded, and one of the best nurses you ever saw in the world. The other was Miss Duffy and she was almost as good. Close to the hospital there was a shaft that went into the Miami mine and was reached by a footpath from the road below. One morning a miner was walking up that footpath alone and he heard somebody groan and he went over to see what it was. It was another laborer that had been slashed through the abdomen with a knife. He was unconscious and there were flies walking around on the wounded man. The laborer was scared to death, he turned and ran to the top of the shaft to get a stretcher and they brought that fellow back. Well, I saw that we must get at that right away. We couldn't waste an hour because it had been contaminated by those flies. So I took Miss Moran and we went into the operating room and I worked as hard as I could. I used about fifty gallons of water. We poured it in and kept pouring it in and finally I was satisfied. I packed the entrails back in, and was almost ready to close when I heard a great commotion happening right outside the door. I did not know whose voice it was — I never knew the man and never saw him before but he was swearing very loudly. I told Miss Moran to finish closing up and plunged out of the operating room just as I was. Of course I had on all white, including a white mask and white covering for my head — but black gloves. I must have looked like something from outer space and I walked up to this man without knowing who he was and began to curse him with everything I had. I surprised him so he began to back up and continued to back up until he was half way up the street. I learned later that he was quite notorious for his temper and his use of his gun.(17)

DR. Ancil Martin brought the first x-ray tube (1898) into Arizona and was the first pioneer roentgenologist and ophthalmologist. He was one of the founders of the St. Joseph's Hospital in Phoenix and his fine reputation as an ophthalmologist helped the growth of the hospital.(18)

The early 1900's marked the "grand entrance" into Arizona of x-ray machines. They took ten minutes to take a picture.(19)

As early as 1910 Dr. Edward W. Adamson, before reaching a diagnosis, was conducting a package system of clinical investigation. He started the first adequate Clinical Laboratory and X-Ray facilities in Douglas. At times when he lacked good technicians he would do the work himself.(20)

This same year Dr. W. W. Watson opened the first clinical and x-ray laboratory in Phoenix. He was medical director of St. Luke's Hospital.(21)

SIX years later because of the wide spread incidence of tuberculosis during World War I in Arizona he originated the idea of chest x-rays for questionably healthy draftees.(22)

DR. N. C. Bledsoe said that he acquired his first sphygmomanometer, a Tycos in 1910 and before that the second sound of the heart indicated high blood pressure.(23)

When I wrote Dr. Bledsoe and asked him if he would please write me concerning surgery etc., that took place in his first years in Arizona, he answered me with a very beautiful letter and casually mentioned two operations. His reply was as follows:

"The shortening of the round ligament I remember, not because of the complexity of the surgery, but because that morning I was truly on my own. Doctor Cavin was supposed to have been there to observe my work — and lend a hand, if necessary; however, he was detained. So I bravely went ahead, made a two and a half inch incision on each side, identified the broad ligament, drew it up and duplicated it. Closure was routine — at least, it became routine in the succeeding years."

THE second — "physical signs indicated that the liver abscess was four fingers width beneath the costal arch. An oblique subcostal incision was made, the pus removed by syringe, gauze drain inserted; closure made by catgut and silkworm gut. It is interesting to note that Doctor Edward S. Godfrey, later New York State Commissioner of Health, was my anaesthetist."(24)

Dr. Charles T. Sturgeon also sent me a case history of amebic abscess of the liver which he performed in 1907 in Globe, Arizona. "There wasn't a private hospital nor had the present Gila County Hospital been built. All the County had at that time were two rooms connected with an adobe house. There was no hospital equipment at all and the rooms held several old fashioned spring cots."

"The case concerned a Serbian about 45 years old. When I first saw him he had been sick a long time with chills and sweat and high fever. He had an enlarged liver and some jaundice and a long history of dysentery."

"We were able to make a diagnosis of amebic abscess of the liver. We were able to demonstrate the ameoba in the bowel contents — so our diagnosis was assured."

"In those days we had no emetine and this case had passed the medical stage and was a surgical emergency."

"So we cleaned up the old quarters as best we could. Washed everything, made sterile dressing material and operated — making incision over the liver — then drained a large abscess — cleaned it out — packed it with gauze. He bled considerably. We returned him to bed with a bad prognosis."

WELL, the Lord was on our side and after a long convalescence, he eventually recovered. In those days I did all the medication myself as we had no nurse but fortunately this place was only a block from my office so I was able to make five or six calls a day on this man."

"There were no nurses as the county did not furnish any help. All service was supplied by volunteers who worked in the mine at that time. These men after working in the mine for eight hour each day brought him *food each day* from their homes. These fellow countrymen stayed with him all through his illness."

"I was impressed by the loyalty and kindness of the patient's countrymen. It was wonderful to see and experience their kindness."

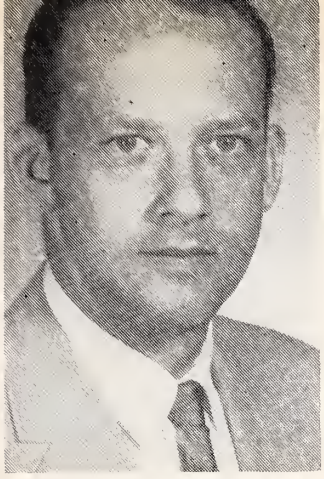
"Later, I saw this man many times at the Old Dominion Mine where he went back to work." (24)

FOOTNOTES

Chapter III

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Part V will appear in Vol. 21, No. 10.



Dr. Schreiber

The Volume of the Heart—A Roentgenographic Determination

by
Melvyn H. Schreiber, M.D.

This simple method of measuring the heart volume has clinical application in following the progress of certain cardiac patients.

WHILE the experienced roentgenologist may prefer to estimate cardiac size by simple inspection of frontal and lateral films of the chest and may do so with considerable accuracy, more objective measurements of cardiac size may from time to time be desirable or necessary. The most commonly employed measurement is that of the transverse diameter of the heart as compared with the transverse diameter of the bony thorax at the level of the diaphragm on a postero-anterior film (Cardio-Thoracic ratio). The normal C-T ratio is said not to exceed 0.5 in adults. Ordinarily, however, the transverse diameter of the heart is considerably less than half the transverse measurement of the chest, and appreciable enlargement may escape detection if this ratio is employed as an index of enlargement of the heart(1). Measurements of the frontal surface area of the heart are widely employed and probably represent an improvement over the use of the C-T ratio. However, since the heart is a three dimensional body, it is evident that no accurate estimation of its true size or configuration can be made from linear or frontal surface plane measurements alone, even though they are exceedingly useful and often adequate(2). A radiographic heart size determination must include consideration of the shape of the heart as well as of its depth dimension in order to provide highly reliable and accurate information.

The volume of the heart may be determined by multiplying the frontal surface (cm^2) by the greatest depth dimension of the heart as seen on the lateral film (cms), provided that allowance is made for magnification in both projections and provided that a constant factor (k), depending upon the assumed shape of the heart, is included. Rohrer(3), assuming the shape of the heart to be midway between that of an obliquely directed paraboloid ($k = 0.59$) and a sphere ($k = 0.67$), first measured the volume of the heart by means of the following formula:

Volume $= 0.63 \times$ frontal area $\times$ depth.

Kahlstorf(4) independently arrived at the same formula by assuming the shape of the heart to lie between that of an ellipsoid ($k = 0.67$) and a paraboloid. Subsequent investigators have relied for the most part upon these original observations; the only important modification has been to include within the formula corrections for magnification(5).

From the Department of Radiology, University of Texas Medical Center, Galveston, Texas.

Method

Carefully positioned frontal and lateral films of the chest are exposed at known target-to-film distances. A fast exposure time (1/30 of a second or faster) is desirable in order to produce a sharp image of the cardiac border, and high speed screens and film facilitate obtaining good quality films with minimum exposure of the patient. While it is doubtful that the phase of respiration during which the film is exposed significantly affects the volumetric determination (6), best results are probably obtained by exposing the film in shallow inspiration. It is not necessary for the patient to hold his breath if the exposure time is sufficiently short.

Kjellberg et al(8) have shown no statistically significant difference between the cardiac volume radiographically determined during systole and diastole, and we have confirmed these results in our laboratory. Hence it is unnecessary to time the exposure electrocardiographically to a specific phase of the cardiac cycle. Because of a decrease in cardiac volume with increase in pulse rate when the patient is erect(7,8), we have preferred the prone position for exposure of the two films required (target-to-film distances: 36 inches for postero-anterior film, 50 inches for lateral utilizing a horizontal x-ray beam). While the prone position and short target-to-film distances may seem somewhat unorthodox, no difficulty has been encountered in the assumption of the proper recumbent position by the patient, and correction factors are introduced to compensate for the magnification resulting from the necessarily short focal-film distances with the patient prone. The standard error of a single determination in an examination in the prone position is relatively slight and presumably less than that in the upright position (8), and exposure of films at precisely right angles to one another is facilitated with the patient recumbent. The final operation consists of direct measurement of the patient's thoracic dimensions in both frontal and sagittal planes at the level of the heart.

Measurements

The length of the heart (l) is measured directly from the frontal film and expressed in centimeters. It is the straight line distance from the junction of the right atrium with the superior vena cava to the radiographic cardiac

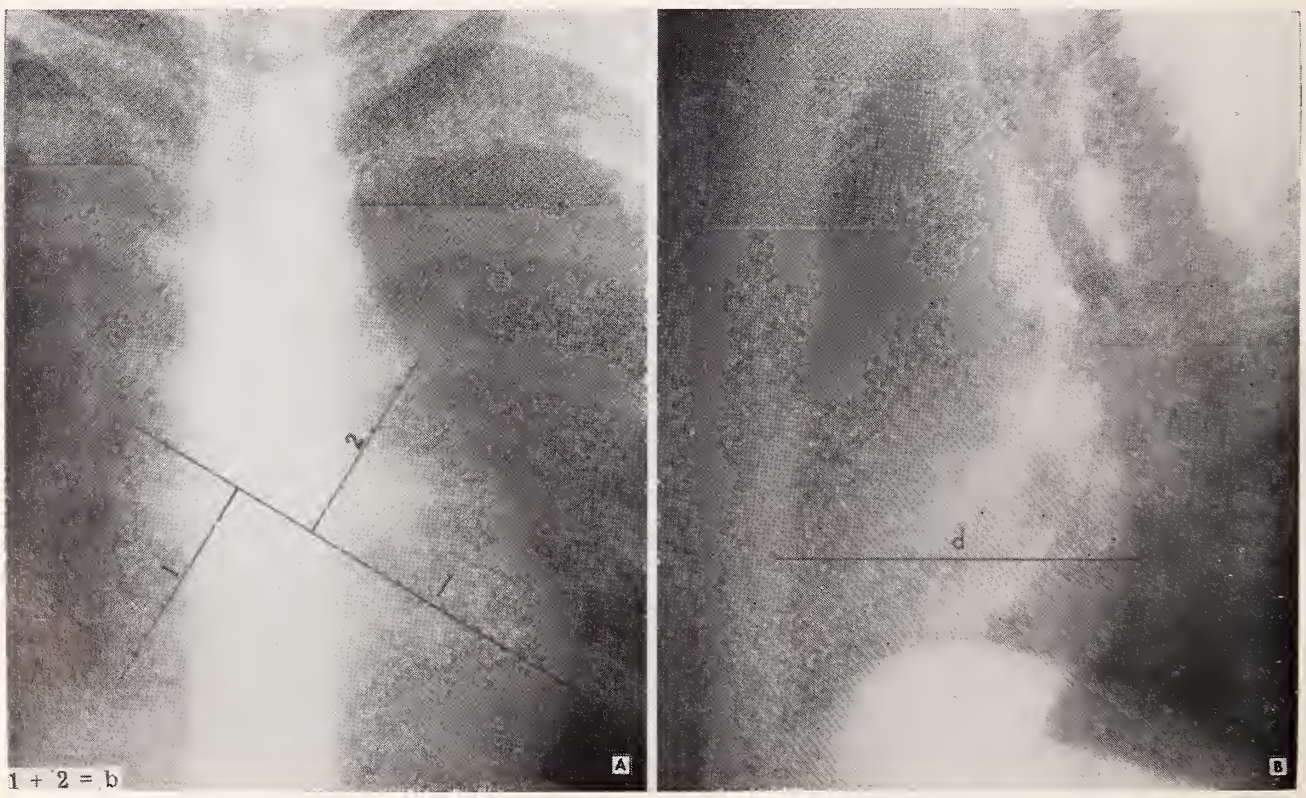


Figure 1. The long diameter of the heart (l) is measured from the cardiovascular junction on the right to the cardiac apex. The broad diameter (b) is the sum of the straight line distances measured at right angles from the long diameter to the cardio-phrenic angle on the right and to the cardio-vascular junction on the left (A). The depth diameter of the heart is measured from the posterior aspect of the sternum to the posterior heart border (B).

apex (most lateral extension of the left heart border).* The breadth of the heart (b) is the sum of the straight line measurements at right angles from the line representing the long diameter of the heart to the junction of the right atrium with the right hemidiaphragm and to the junction of the left heart border with the lowermost portion of the main pulmonary artery segment (Figure 1 A); it is expressed in centimeters. The depth of the heart (d) is measured on the lateral film from the posterior aspect of the sternum to the posterior-most extension of the heart shadow (Figure 1 B). A small amount of barium paste in the esophagus during exposure of the lateral film may facilitate location of the posterior heart border, although that is not essential. These three measurements are then corrected for magnification in the following manner.

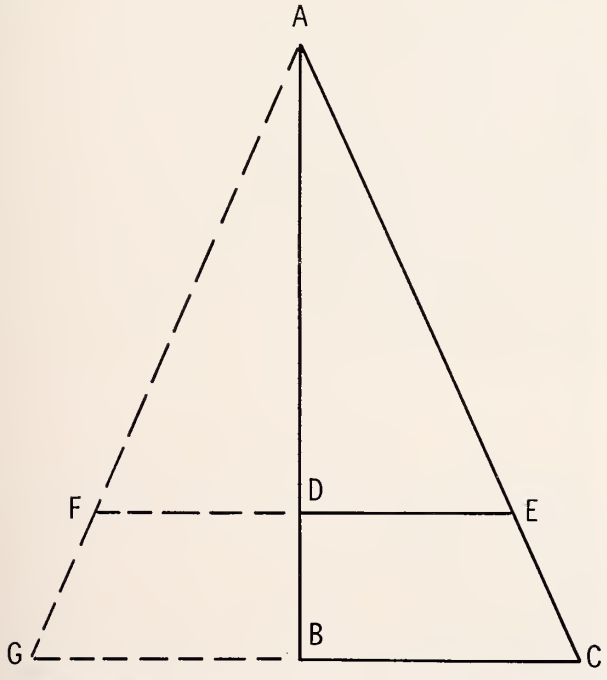


Figure 2. If the anode-to-film distance (AB), the object-to-film distance (DB) and the image size (GC) are known, the object size (FE) may be determined using the method of similar triangles. Since corresponding sides (DE and BC) of similar triangles (ADE and ABC) are proportional, one half the object size (DE) may be determined by solving the proportion $\frac{DE}{BC} = \frac{AD}{AB}$

The object size (FE) then equals 2 X DE.

In the great majority of individuals, the frontal plane of the heart lies approximately one-third of the way back along the antero-posterior axis of the chest(9). Thus, one may determine the object-to-film distance in the antero-posterior diameter by dividing the already determined AP dimension of the patient's chest by 3 and adding to this figure the distance from the radiographic table top to the film. Knowing the target-to-film distance, the object-to-film distance, and the image size (l and b), one may calculate the true object size (the true length and breadth of the heart) by the method of similar triangles (Figure 2). One may perform the same operation for correction of the measured image of the depth of the heart by using for the object-to-film distance one-half the measured transverse dimension of the chest. This operation may be considerably simplified by preparing a series of size distortion graphs for a fixed target-to-film distance from which the true object size may be read directly if the measured image size is known (Figure 3).

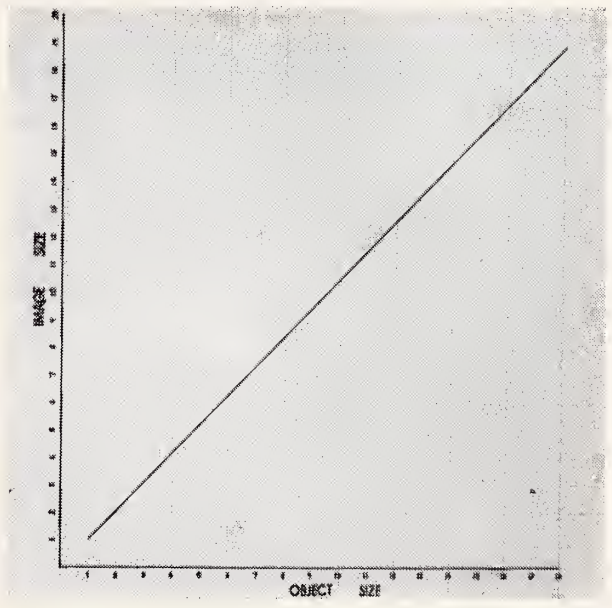


Figure 3. Representative size distortion correction graph for object-to-film distance of 8 centimeters and target-to-film distance of 150 centimeters. The measured image size is found on the ordinate and the corrected object size is read on the abscissa. Correction of measurements for magnification may be facilitated by preparation of a series of such graphs for different object-to-film distances.

Calculations

The frontal surface area of the heart is determined by multiplying the corrected length of the heart (l) in cms. by the corrected breadth of the heart (b) in cms. and multiplying this product by an empirically determined constant equal to 0.735. This results in a figure for the frontal surface area of the heart in cm^2 which

*The apex of the heart may also be considered to be the point along the left lower heart border farthest from the junction of right atrium and superior vena cava. Determining this point commonly requires completing the left lower portion of the cardiac silhouette by visual estimation and introduces a source of error. If this point is used, values for cardiac volume will be slightly higher than if the lateral-most extension of the heart border is used. Either point is satisfactory provided that it is used consistently in following changes in heart size.

bears a very high coefficient of correlation with the planigraphically measured area(10). This figure for surface area may then be applied to the Rohrer-Kahlstorf formula along with the corrected depth dimension of the heart and the previously described constant (k) as follows:

Volume = frontal area × depth × 0.63.

The volume thus obtained is expressed in cubic centimeters.

Summary of Prone Method

1. Measure the size of the patient's chest in both frontal and sagittal planes.
2. Direct the patient to assume the prone position on the radiographic table.
3. Expose a postero-anterior film at 36 inches target-to-film distance with an overhead x-ray tube.
4. Expose a lateral film at 50 inches target-to-film distance with a horizontally directed x-ray beam.
5. Measure the length of the heart and the breadth of the heart from the frontal film and correct for magnification.
6. Measure the depth of the heart from the lateral film and correct for magnification.
7. Determine the frontal surface area of the heart by multiplying the corrected length and breadth measurements by 0.735.
8. Determine the volume of the heart by multiplying the frontal surface area times the corrected depth measurement times 0.63.

Simplified Erect Method

The operations described above may be greatly simplified by incorporating into a single constant (K = 0.44) the factors for magnification, surface area determination, and assumed geometrical cardiac shape, provided that the anode-to-film distance in both directions is fixed at 6 feet (72 inches) and the patient is filmed in the erect position.*

No extraordinary equipment is required; the patient is positioned for postero-anterior and lateral erect chest films before the upright cassette holder, and the target-to-film distance is adjusted to 72 inches (6 feet) for both frontal and lateral exposures. Length, breadth and depth measurements are taken directly from the films and are not corrected for magnification. The formula for heart volume measurement may then be expressed as follows:

Volume = length × breadth × depth × 0.44.

While this modification takes certain liberties in assuming a fairly standard shape of the heart and assuming object-to-film distances to be relatively fixed within a certain range, it suffices for volumetric determination of the size of the heart in the great majority of persons.

Correlation with Body Surface Area

The final operation in heart volume determination relates a radio-graphically determined cardiac volume to the size of the patient, thereby facilitating comparison of heart size determinations between different patients and allowing for establishment of useful ranges of normal values. The correlation between heart volume and body surface area has been found by Lysholm et al(12) to be high ($r = 0.84 \pm 0.04$), and this correlation is generally used. The formulas and chart of Dubois and Dubois(13) permit rapid determination of the body surface area in square meters if the height and weight are known. The figure for absolute cardiac volume in cubic centimeters is divided by the surface area in square meters, and a final figure for heart volume is expressed in cubic centimeters per square meter of body surface area.

Normal Values

Using the methods detailed above the range of normal values (the mean value increased and decreased by two standard deviations) is 250-450 cc per square meter in men(5, 14, 15) and 200-435 cc per square meter in women(15). With regard to uncorrelated absolute volume determinations, 91 per cent of normal adult males can be expected to have a heart volume of less than 750 cc, and 92 per cent of adult females, a heart volume of less than 550 cc(16).

Sources of Error

Errors in the application of measurements and mathematical formulas to biological material inevitably occur, particularly with regard to the application of statistically determined mean values to the individual patient. In the case of cardiac volume determinations difficulties may arise because of the alleged differences in systolic and diastolic size of the heart, the change in cardiac size with change in pulse rate in the

*Original determinations by this method were done at 1.5 meters (60 inches) target to film distance employing the factor 0.42 (5, 11); by using the figure 0.44 the more commonly employed 6 foot target-to-film distance may be used.

erect position, and the influence on heart size of extreme limits of respiration. Technical errors include those introduced by curiously shaped hearts, standard correction for magnification, and care of measurement of diameters. The method described above has errors which, in unfavorable cases, probably amount to a maximum of 10-15%(3, 15).

Summary and Conclusions

While radiographic determination of the volume of the heart may be somewhat more laborious than simple inspection and linear or surface area measurements, in selected cases it provides an accurate means for heart size measurement which considers also the depth dimension of the heart. Comparison of post-mortem x-ray determinations of heart volume and volume determined by the water displacement method have shown good agreement in all cases(17). The method permits accurate evaluation of heart size for purposes of comparison of serial studies and finds its greatest usefulness in this area. It is recommended as an additional means of evaluating the cardiovascular status of selected patients when an accurate and reproducible means of determining heart size which objectively evaluates the three cardiac dimensions is needed.

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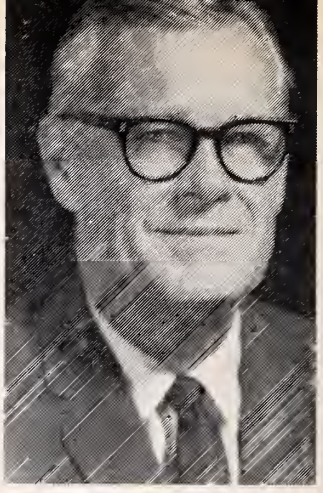
DID YOU KNOW?

Trends in distribution of physicians between "in private practice" & "not in private practice"

Year	Total Physicians In Private Practice No.	Not In Private Practice Total Federal	Not In Private Practice Total Non Federal	Total Physicians Not In Private Practice	Address Temporarily Unknown	Total All Physicians
1960	168,142	16,980	66,455	83,435	1,407	252,984
1961	171,339	19,186	68,584	87,770	1,410	260,519
1962	171,142	22,180	73,943	96,123	1,415	268,680
1963	174,974	21,914	78,254	100,168	1,335	276,477

Information source: AMA May, 1964.

Venereal Disease Situation In Maricopa County



Dr. Farnsworth

by

Stanford F. Farnsworth, M.D., M.P.H.

From the very high peaks of incidence of venereal disease that prevailed during World War II and in the post-war years, the rates for these diseases dropped to low levels by 1957. During the past five years, however, the occurrence of venereal infections in this country have risen sharply, especially among the teen-age and young adult groups.

In Maricopa County the statistics on venereal disease have followed the national pattern. In 1962, in Maricopa County, there were 322 cases of syphilis reported. Figures for the first months of 1963 indicate that the minimum number of cases will reach at least 704 for the year. During the same period gonorrhea appears to have increased to an even greater degree.

A survey by the American Medical Association reveals that approximately 76 per cent of the venereal disease patients are being treated in the offices of private physicians. This survey also indicates that physicians are reporting only about 11 per cent of their cases to Health Departments. This means that only a small proportion of the contacts of the cases of infectious VD are being investigated and brought under treatment. The cooperation of all practicing physicians will do much toward the solution of the current up-surge of acute venereal infections.

ORDINARILY, in discussing specific disease entities, I would be very concerned with descriptions, diagnoses and treatment. However, these are widely known factors in venereal diseases, and such a treatise would be superfluous. The thing that does need to be exposed is the impact venereal diseases have on individuals, on families, on communities, and on the nation. In Public Health, with active VD control programs, we see these things at first hand — and they are not pretty.

The statistics alone are alarming as far as VD is concerned. In 1957, when the new cases of primary and secondary syphilis in the U.S. plummeted to 6,251 from a peak of 106,539 ten years earlier, we congratulated ourselves on finally having VD under control and patted ourselves on the back for the enviable record we had achieved. Since then, however, instead of further eradication of the disease, there has been a gradual, then not so gradual, increase yearly to a total of 18,781 cases *reported* in 1961. There is every reason to believe that there is a minimum of two, and possibly as high as six to eight unreported cases for every reported one, so that there would have been at least 60,000 patients in the U.S. with syphilis in 1961.

THE Communicable Disease Center in Atlanta reported a 12-year high in 1962 with 20,084 cases of primary and secondary syphilis. Annual incidence of new gonorrhea stands at 260,468 cases. This is a rate of 11.0 per 100,000 population for syphilis and 142.8 for gonorrhea. These are truly alarming rates for serious endemic communicable diseases. They are even more alarming in our own community. In Maricopa County these rates are 80.0 and 210.0 respectively

Director, Maricopa County Health Department, Phoenix, Arizona.

— more than seven times the national rate for syphilis and roughly one and a half times that of gonorrhea.

ON the Federal level only, let us take a look at what this means in terms of dollars and cents. In 1950, Federal appropriations for control of VD reached a high of 11c per capita, only to be slashed to 3c per capita during most of the late 1950s. This low amount still cost the taxpayers $4,500,000 per year. With the rise in VD, however, there has been a steady increase in Federal appropriations, reaching $6,000,000 in 1962 and expected to exceed $9,000,000 in 1964. These appropriations do not represent the cost of VD. To these must be added the amounts spent by individuals, by medical centers, and by State and Local Public Health agencies in disease control efforts. Yet, this money is still below the amount needed and recommended by the health agencies most concerned with the problem.

In Maricopa County the statistics on VD have followed the national pattern. Just take the figures for 1962 and the projection for 1963 based on the first nine months of this year: In 1962, in Maricopa County, we had 322 reported cases of syphilis. In 1963, this number will more than double and is expected to reach a minimum of 704 cases. There were 1,562 reported cases of gonorrhea in 1962. According to projections there will be at least 1,924 this year. The actual number of new cases will be more than triple these amounts.

In 1961, a special task force on syphilis was set up by the Surgeon General. This task force has reached the conclusion that syphilis is occurring in this country at a rate of at least 60,000 cases a year, but is being reported at a rate of only 19,000 cases a year. That difference — from 19,000 cases to 60,000 cases — is the margin of failure in the VD control effort. Unreported VD, whether syphilis or gonorrhea, results in untreated cases and in wider and wider spread of the disease.

THIS is a disease that knows no boundaries, either geographical, physiological, ethnological, nor sociological. Once thought to be a disease of the big cities and of prostitutes, it is increasingly becoming a disease of everywhere — perpetrated by "amateurs."

If it were just a medical problem it could be dealt with fairly simply. Unfortunately, this is not the case. It is a disease that has legal implications, moral and asocial overtones, and brings with it possible family and marital disorder and destruction and general loss of status. Yet, to paraphrase a statement made by Doctor Tuerk at the World Forum on Syphilis in September, 1962: We cannot legislate effectively against acts which lead to transmission of VD; therefore cannot control it in this manner. We must concern ourselves with the disease itself and the people and problems it involves.

THE multiple problems associated with VD come out clearly in an organized program of VD control with trained medical and investigative staff. Let me give you some examples of the types of problems, other than those that are purely medical, that do arise — and have arisen — right here in Maricopa County.

Illegitimacy and its attendant problems, especially those involving mixed racial unions, come to us frequently. Some time ago a very attractive young blonde was admitted to the Florence Crittendon Home for prenatal care and delivery. This was her second child by her common-law husband, a man who had left her and gone out of the State. Upon admission to the Home, six months prior to delivery, an STS was done, but this was negative. The baby was born and placed in a foster home to await adoption. Here it was noticed that the baby was not developing normally. After a series of tests, including a blood test, congenital syphilis with resulting bone changes was diagnosed. This was brought to the attention of the health department by the adoption agency.

The mother was traced and brought to the Department for diagnosis and treatment. Evidently she had become infected immediately prior to entering the Home; therefore her blood test was non-reactive at that time. No further test was done during the remainder of her pregnancy. When she was interviewed she named only one contact besides her common-law husband, and this man was also brought into the clinic. During his interview it was elicited that, about the time he had been dating the girl, he had been treated for trench mouth by a dentist. No other attempt had been made to diagnose his illness prior to this investigation. He was admitted to the clinic for diagnosis, followed by treatment of a disease he hadn't suspected, but

had spread, even to a baby whose life he had created, though not fostered.

THEN, other medical-physical problems add to the complications in VD control: A man admitted to County Hospital had a routine blood test for syphilis and was found to be positive. He named one contact other than his wife. The girl friend was treated, but he gave every excuse imaginable to keep from bringing his wife in, even to the point of saying that he had not been sleeping with her. Eventually, we discovered that one of the reasons he was afraid to have her come in was that she was allergic to penicillin.

WHEN we did finally get the wife in for diagnosis, we found that she was completely deaf and dumb. She did not read lips and had no understandable sign language — but she did have secondary syphilis! How do you interview a person like this. The only person she could communicate with to any extent was her mother, and ordinarily mothers are not the people to ask these questions.

In passing, I might mention that Indian mothers do not seem to feel quite the same way. In many instances they are eager to name all of their daughter's contacts, and even those they *suspect* might be their daughter's contacts!

Homosexuality, a problem in this and other metropolitan areas, is creating not only legal, but severe medical and social problems throughout the nation as far as VD is concerned. Doctor Ralph R. Sachs, executive officer of the Los Angeles Health Department, reports that half of the male patients they see with primary and secondary syphilis name male contacts exclusively during interviews by health officials.

Not long ago in Phoenix, two young men were picked up by a policeman when they were found having homosexual relations in a parked car. One of these, a university student who had come to Arizona to accept a scholarship, was found to have primary syphilis. When interviewed by a trained VD investigator he named twenty-four male contacts, most of them also college and university students, all the way from Mississippi to Arizona, and all within the previous three months.

IN San Francisco, a male homosexual named 104 contacts within a three-month period. Three of these were found, investigated and treated right here in Phoenix.

Approximately ten patients per week come to the health department from the jail. They may be brought to the health department because they are sick and ask to come, because they have been picked up for prostitution, or because they are on a list of suspected VD contacts left at the jail by our investigators.

I might note, also, that many cases of syphilis are picked up by further testing of persons who have positive PCTs at the Southwest Blood Bank. Not every positive PCT, as you know, means syphilis. However, positive reactors are referred to the Department where additional tests are done to determine whether or not they are actually infected.

A serious problem, one of concern to us as medical men, as parents, and as members of the community, is the increase in VD among teenagers — 15 to 19-year-old children. VD in this age group today is about seven times as great as it was a few years ago. There are many reasons for this increase, I'm sure. Sociologists believe that the major factors involved are the increased mobility of the population which promotes transient relationships, and greater opportunity for casual sexual encounters, plus the fact that urbanization breaks down old cultural patterns and makes it harder for parents to instill high moral standards.

A RATHER tragic example of teenage VD in the Valley is that of a 30-year-old woman right here in town who was brought to the clinic for treatment of gonorrhea. As a result of the interview with her, six of the teenage boys she named as contacts, from 14 to 17 years of age, were found to be infected and were treated at our clinic. The same woman also named fourteen adult contacts.

VD in adults and teenagers is bad enough, but it doesn't stop there. Last week four little girls — ages 4 to 10 — were brought to the clinic by their parents. All four had gonorrhea. Let me stress that this was not familial. Neither the parents nor the two little boys in the family were infected. Our investigators are now attempting to locate the source in the community.

In this day and age it is a simple matter to cure syphilis and gonorrhea, but nobody has yet

found a way to cure a disease without getting the patient in for treatment. We know that for every case we are treating, many others are going untreated.

IN a survey done by the American Social Health Association, in cooperation with the American Medical Association, the American Osteopathic Association and the National Medical Association in September, 1962, in which 131,245 physicians responded to the questionnaires, it was discovered, by admission of the physicians, that they were reporting only 11% their cases of infectious syphilis, and only 11% of the cases of gonorrhea that they treated.

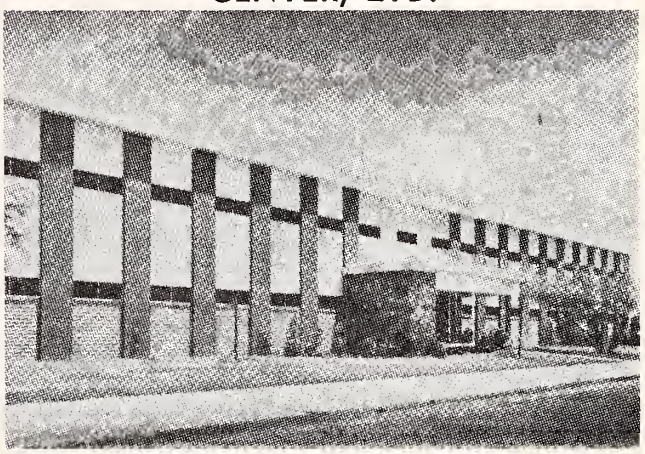
In a report of this survey in the Oct. 5, 1963 issue of the Journal of the American Medical Association, Doctor Arthur C. Curtis states that replies to the questionnaire indicated that private physicians are treating at least 76% of venereal disease. It had been thought previously that only about one-third were being treated by private physicians. Therefore, it was assumed that more contacts were being followed up as a result of Public Health programs in which the other two-thirds of the patients were being treated.

Doctor Curtis states, "The basis of effective syphilis case finding is the prompt reporting of cases of infectious syphilis to state and local health authorities by physicians in private practice. Since more patients are being treated in the physician's office than in clinics or institutions, the control of syphilis must hinge not only upon the cooperation of doctors in private practice with the health authorities, but also upon a closer liaison between the health authorities and the private physician. . . .

EACH case of infectious syphilis that is not identified, reported and processed epidemiologically does four things to the community: (1) it contributes to the spread of the disease, (2) it increases the existing infectious syphilis reservoir, (3) it eventually results in a higher attack rate in the population, and (4) it positively prevents any possibility for the control of syphilis. Consequently, the search for hidden cases is a continuing responsibility of private medicine and of public health."

This paper was presented at a meeting of the Maricopa County Medical Society on November 4, 1963.

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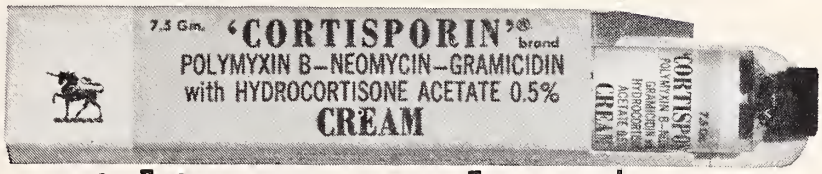


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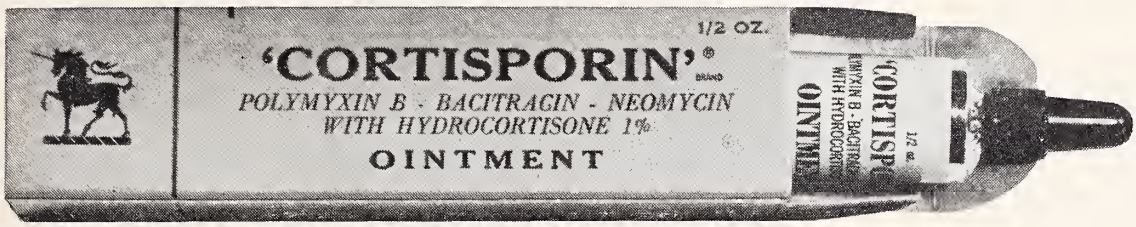
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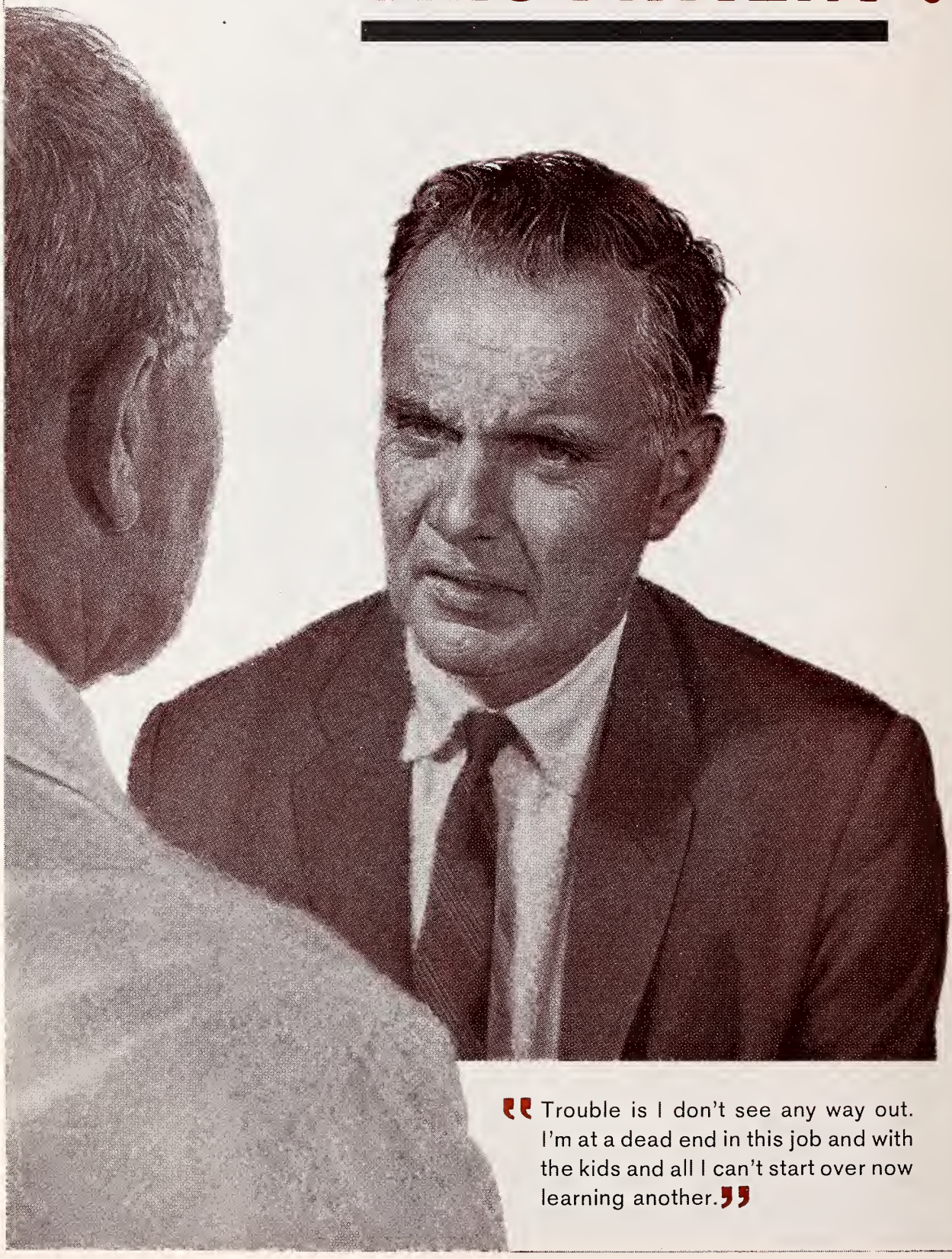
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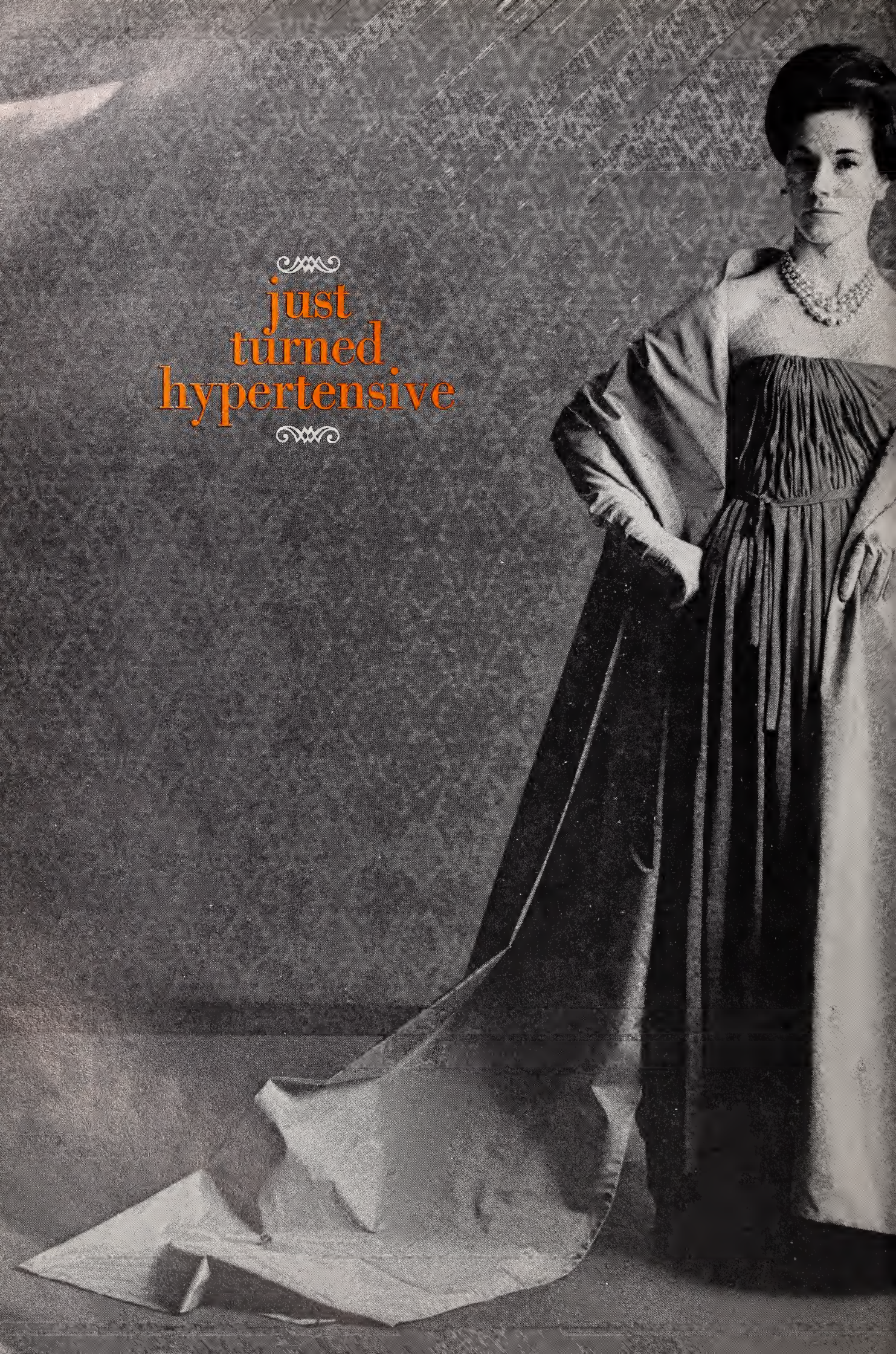
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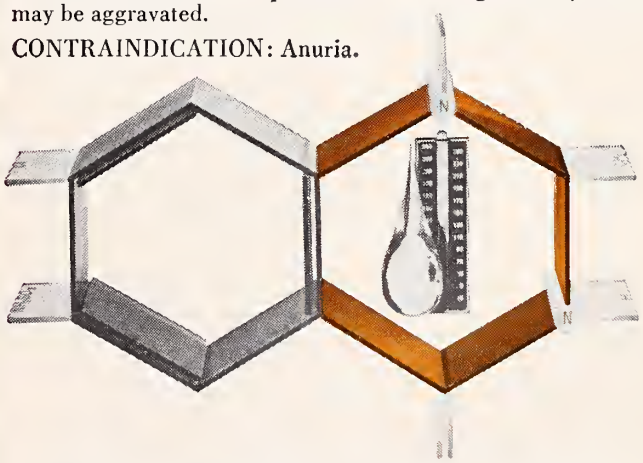
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1. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. *J. Amer. Geriat. Soc.* 11:945 (Oct.) 1963.
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We have just returned from the annual meeting of the American Medical Association in San Francisco. It was great, even greater than before. There were 13,838 member physicians registered by the third day with a grand total of some 41,000 if you include guest physicians and nurses and medical students. More than a thousand nurses registered and over 500 medical students.

Norman Welch of Boston took over from Edward Annis and Donovan Ward of Iowa became president-elect. And our Lindsay Beaton was elected president of the Aces-Deuces organization! Your Arizona delegation was there 100% strong — and Jesse Hamer, our venerable veep, sat through every minute of the long business sessions. What a man! So did Bob Carpenter, but he seems to thrive on the stuff.

Me, I got edematous ankles, and felt a little self-pity because I could only attend one afternoon's scientific sessions (and in gastro-enterology, not surgery) and one afternoon for the exhibits, which are tremendous, tops, the greatest! I slipped away Thursday night and saw the Giants beat the Dodgers, and felt like a truant doing it. I didn't take an overcoat and a blanket like the San Franciscans did and nearly froze to death — but I dressed for baseball, not football, as any desert rat from Arizona would do toward the end of June. Boy, how that wet wind whips into Candlestick Stadium!

We were a little thrilled at the Conference of Presidents and other officers of State Medical Associations, a little awed at the inauguration of the President of the AMA, and a little amused when a resolution on unwed mothers was referred to the committee on miscellaneous business, or "mistress-aneous business" as its chairman called it. But we were most impressed with the massive quantity of business which comes under study by the AMA, its officers, board of trustees, house of delegates, councils, sections, committees, some 400 to 500 doctors working in the name of 200,000. Regardless of the problem, nothing was considered frivolously and incompletely. No cloture was ever invoked or necessary, no one was denied a chance to speak — and as long as he wished. Everything was decided by the majority, and in good faith.

The Board of Trustees made no less than 19 separate reports, one of these, through the Commission on Cost of Medical Care, is a four-volume work of over 500 pages! Reports were given by standing committees and one of these from the Council on Medical Service pertaining to Physicians' Hospital Relations is a book of some 186 pages. And then 74 resolutions were introduced by the various state delegations! I am assured that this was not an unusually large number. But knowing little about the American Medical Association, as do most physicians, it seemed large to me.

These resolutions ran the gamut from human rights and discrimination in medicine, to various aspects of medical education, hospital planning, doctor-patient relationship, medical care for the aging and unwed mothers. No less than 10 states submitted resolutions on smoking and health. Our Arizona delegation introduced a resolution on "Internal Revenue Service Proposed Regulations Prohibiting Professional Service Corporations from Enjoying the Benefits of Corporate Tax Sheltered Pension Plans," a problem of great concern to all physicians. I can't help but chide our delegates since neither of them could be found for the hearings in resolution committee and Charlie Henderson had to fill in the breach. I didn't see either of them at the meeting with the Board of Trustees or at the long hearings by the committee on Public Health and Occupational Health, which heard all the evidence on tobacco. Maybe they were over in the Committee on Sections and Sections Work considering space medicine.

At any rate, it is simply astounding to realize how far-reaching the work of AMA is and how

its policies affect the lives of every one of us and every one of our patients — and even the lives of the healthy. For it is concerned with sickness and health, the prevention of all disease, the cost of medicine and the stand of medicine in the socializing political milieu in our United States and in the world. With any faults it may have, spawned of the human intellect, it is one of the most potent forces for good in the world today. And we, who really know so little about it first hand, but who are so prone to criticize it or accept criticism of it from its enemies, should go and sit and speak and learn and stretch our minds — and realize that the AMA is you and I.

This is one of the major reasons I tried to amend our own by-laws last April so that we would have a succession of doctors going officially as alternate delegates to the AMA to learn this lesson and bring it back and promulgate it. For our AMA in its greatness is misunderstood and maligned by some who are willing to make a diagnosis without ever seeing the patient.

As I said I would last month in this space, I sat through every word of the hearings on tobacco and tobacco research and labelling of cigarettes. I talked with committee chairmen, the speaker of the house, Milford Rouse, and the president, Edward Annis. And I was a little ashamed, because I had sat with the house of delegates last fall in Portland and didn't remember the actions taken then on tobacco; nor had I bothered to read the actions taken a year ago in Atlantic City. Parenthetically I might say that the work of the house could be cut in half if those delegations introducing resolutions would only look back at what has been done before; time and time again I heard references made to previous actions which cleared up entire issues.

But back to nicotine. In *June, 1963* the AMA House of Delegates in a policy statement recognized the deleterious effect on human health of tobacco and indicated that extensive research is necessary to elucidate the exact relationship to health of this agent. In *December, 1963* the House endorsed a program of clinical and scientific research to find out what specifically happens inside the body when tobacco smoke is inhaled and to determine, if possible, whether health hazards of smoking can be minimized. Subsequently the AMA allocated $500,000 to start the project under the aegis of AMA-ERF, which then chose five eminent scientists in this field, headed by Maurice Seevers, chairman of the Dept. of Pharmacology in the U. of M., to establish policies and methods for handling research grants. Three of these men served on the recent study committee of the Surgeon General of the Public Health Service of the U.S. Still later, six major tobacco companies pledged $10 million over a five-year period without restrictions of any kind except that the money be used for research on tobacco and health.

In the report of the American Medical Association Education and Research Foundation, which was approved by the reference committee on Reports of the Board of Trustees and then approved by your AMA House of Delegates, (June, 1964) Raymond McKeown said, "The Board of Directors of AMA-ERF and the Board of Trustees of the AMA were clearly aware of the possibility of criticism in accepting this grant. But against that possibility they weighed the potential benefits to the public who will continue to smoke and concluded that the risk was insignificant by comparison. The only hope of minimizing the hazards of smoking lies in research, which points to the course that the AMA as well as others must take." This is the nub of the problem, the answer and the official AMA stand — not a fly-by-night decision, but one made out of previous deliberations of the AMA house at least a year ago. No one criticized these earlier proclamations that I know of.

The matter of labelling cigarette packages revolves around the same research concept. I discussed this too with Milford Rouse and Edward Annis and "Bing" Blasingame, and I have a copy of the AMA reply to the Federal Trade Commission's invitation to express its views on the "Proposed Trade Regulations Rules for the Advertising and Labelling of Cigarettes" published in the Federal Register of January 22, 1964.

After discussing the need for research in depth on tobacco, clinical research as opposed to pure statistical analysis, an opinion against labelling is developed around the concept of labelling not a product, as is done by the F.T.C.,

but an entire substance — tobacco — which is being used by 72 million of our citizens today. This is not a matter of labelling a single product, but all products of all companies in the cigarette industry. This the AMA felt was not properly in the domain of an administrative regulation by the F.T.C., but should be controlled by the Congress of the United States by legislation.

We hear the cry of bureaucracy and bureaucratic government on every side. Here is a prime example of it and some among us give aid and comfort to the enemy, the bell ringers of socialism, by our ill-conceived attacks on such AMA policy, attacks conceived in ignorance, no matter how well intentioned. It is just such attacks which abet the forces outside of and inimical to medicine to lead the medical profession. To repeat from last month, this is no time for a call to arms unless it be a call to arms of a *united front* in medicine, long past due, against a long united and well-armed and very astute enemy, which is using the thinly vailed tactic of divide and conquer in our own ranks.

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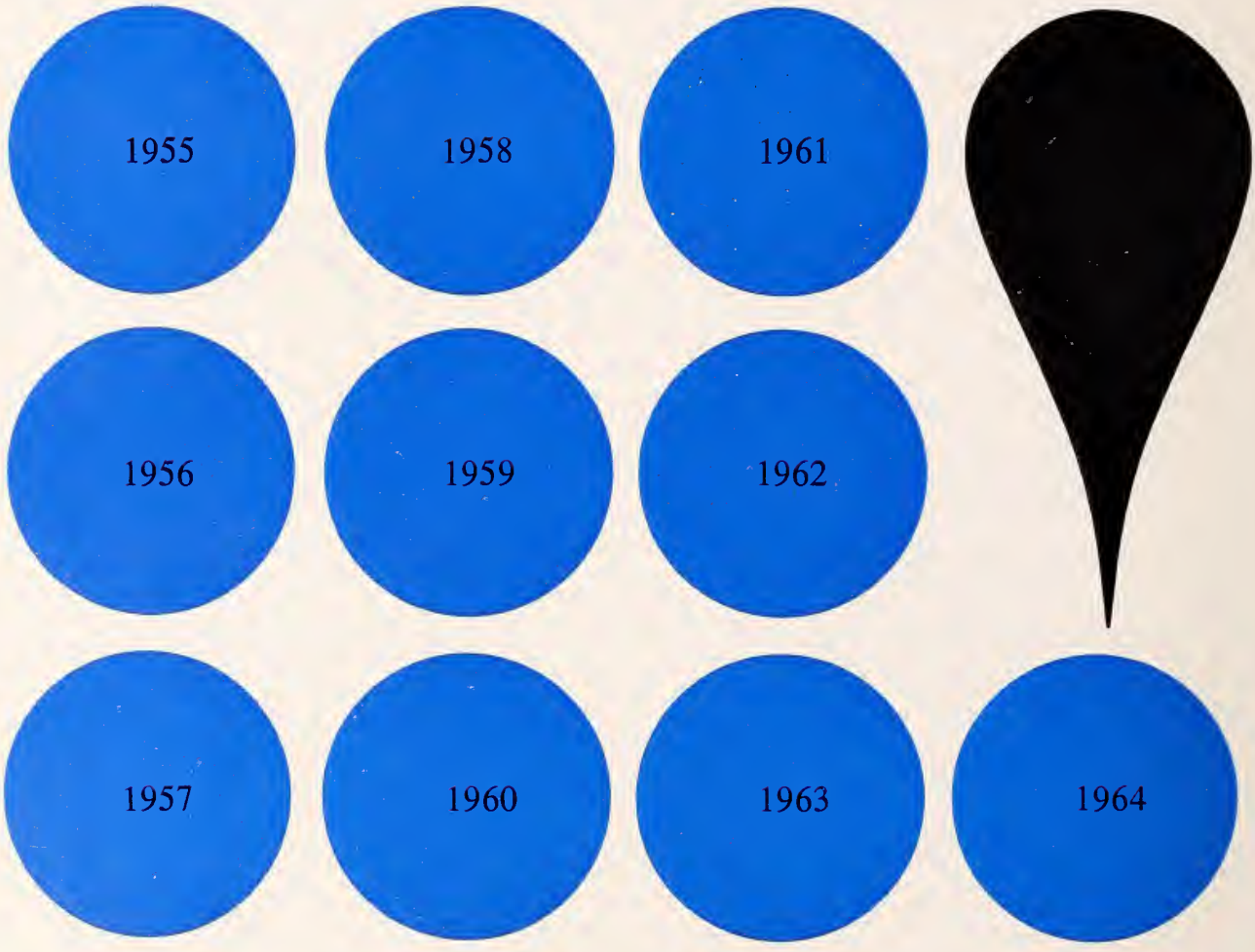
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It was stimulating to see Arizona physicians, and their wonderful hard working wives participating in policymaking within a major political party.

Warm friendship and hospitality was offered by the California Medical Association when we attended their luncheon given for out of state doctors and their wives.

It was with pride that we watched as a fellow physician was placed in nomination for the highest office in the land.

A crisp breath of fresh air carried words like "fiscal responsibility" and "repayments on the public debt," as well as statements supporting medical care for all the needy financed by general revenues through federal-state plans, rather than through compulsory social security schemes covering part of the costs for everyone regardless of need.

Most refreshing of all was the nomination for President, of an energetic, honest Arizonan, whose starboard tack sails before the winds of individual initiative, integrity, and responsible citizenship.

The humidity was high as the "mainstream" drowned the boilers of the historic "liberal steamroller" — but it was refreshing in San Francisco in July.

Robert F. Lorenzen, M.D.
Editor

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Material submitted for publication in ARIZONA MEDICINE should conform to the following policies:

1. Manuscripts, including references or bibliography, should be typewritten, double-spaced, on one side of the paper only, and the original and a carbon enclosed.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
3. Although the Editors try to catch inaccuracies, the ultimate responsibility is the author's.
4. Articles are accepted for publication only if they are contributed exclusively to this Journal. Ordinarily, contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.
5. The Journal reserves the right to edit all material.
6. Reprints will be supplied to the author at printing cost.

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THE SEPARATION OF A AND B

DUE TO the extreme growth of both operations over the last several years and with a new enforceable medical practice act enacted by the 1964 State Legislature, the Executive Committee of The Arizona Medical Association (ArMA) and the Board of Medical Examiners (BoMEX) following lengthy study and discussion determined to physically separate the offices of ArMA and BoMEX, insisting upon adjacent office locations and continuing co-operative liaison for the benefit of both.



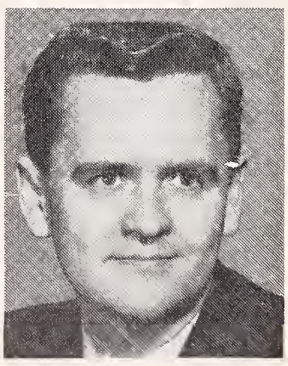
Mr. Robert Carpenter

ROBERT CARPENTER, Executive Secretary of both offices since 1953, first assumed that position with ArMA in 1950 and will continue in that latter capacity on a full-time basis, which will benefit greatly the programs of the Association and the efficiency of its Central Office. Mr. Carpenter, a native of Pennsylvania, spent a goodly portion of his earlier business career in New Jersey, following graduation from Drake Business College, where for twenty years he served the County of Essex, New Jersey, as secretary of the Highways and Bridges Department, Road Commission and concluding such services as secretary to its Board of Freeholders, all in the field of business administration and management. He was a successfully elected official of his community of residence, Verona, New Jersey, and participated actively in many of the more important community undertakings. Arriving in Arizona in 1947, following a yearning desire to "Go West," he now considers himself a "transplanted," satisfied native of this state.



Mr. Paul R. Boykin

PAUL R. BOYKIN, Assistant Executive Secretary of ArMA since 1956 and Administrative Assistant to the Board of Medical Examiners beginning in 1958, has been given an extended leave of absence by ArMA to assume the management of the offices of the Board of Medical Examiners on July 1, 1964. His single continuing assignment with ArMA will be associated with the Annual Meetings. Paul, always sales and public relations minded, came to Arizona in 1953 from the Hoosier state, having served several major Indiana manufacturers in sales, sales management and personnel; holds memberships in the Phoenix B.P.O. Elks, Montezuma Lodge F. and A.M.; is a 32° Mason and recently joined the Phoenix Optimist Club. We are certain he will serve the Board of Medical Examiners capably and with credit and return to the services of ArMA when conditions may alter the current staff assignments.



Mr. Bruce E. Robinson

BRUCE E. ROBINSON, currently titled Executive Assistant to ArMA but also having assumed responsibility for BoMEX office management, will serve ArMA as Mr. Carpenter's assistant, with the added assignments as Managing Editor of *Arizona Medicine* and on call to BoMEX for its meetings, vacation schedules and

continued training in both offices for the potential conditions of future management requirements. Bruce, native to California, a graduate of the University of Washington, is new to our offices. He escaped the recent infamous Alaskan earthquake by a few weeks; arriving in Arizona (which the family dearly loves) in January, 1964. His nine years with the Northern Commercial Company in Seattle and Anchorage in management capacities speaks well of his prospects with medicine, which is greatly enhanced by three years as a hospital administrator.

IT HAS been decided that both offices will relocate in the Safari Building, 4601 North Scottsdale Road, Scottsdale, with ArMA in Suite 201 and the Examiners in Suite 202, on or about August 1, 1964. Telephones will remain as listed and the P.O. Box number for both will continue as 128.

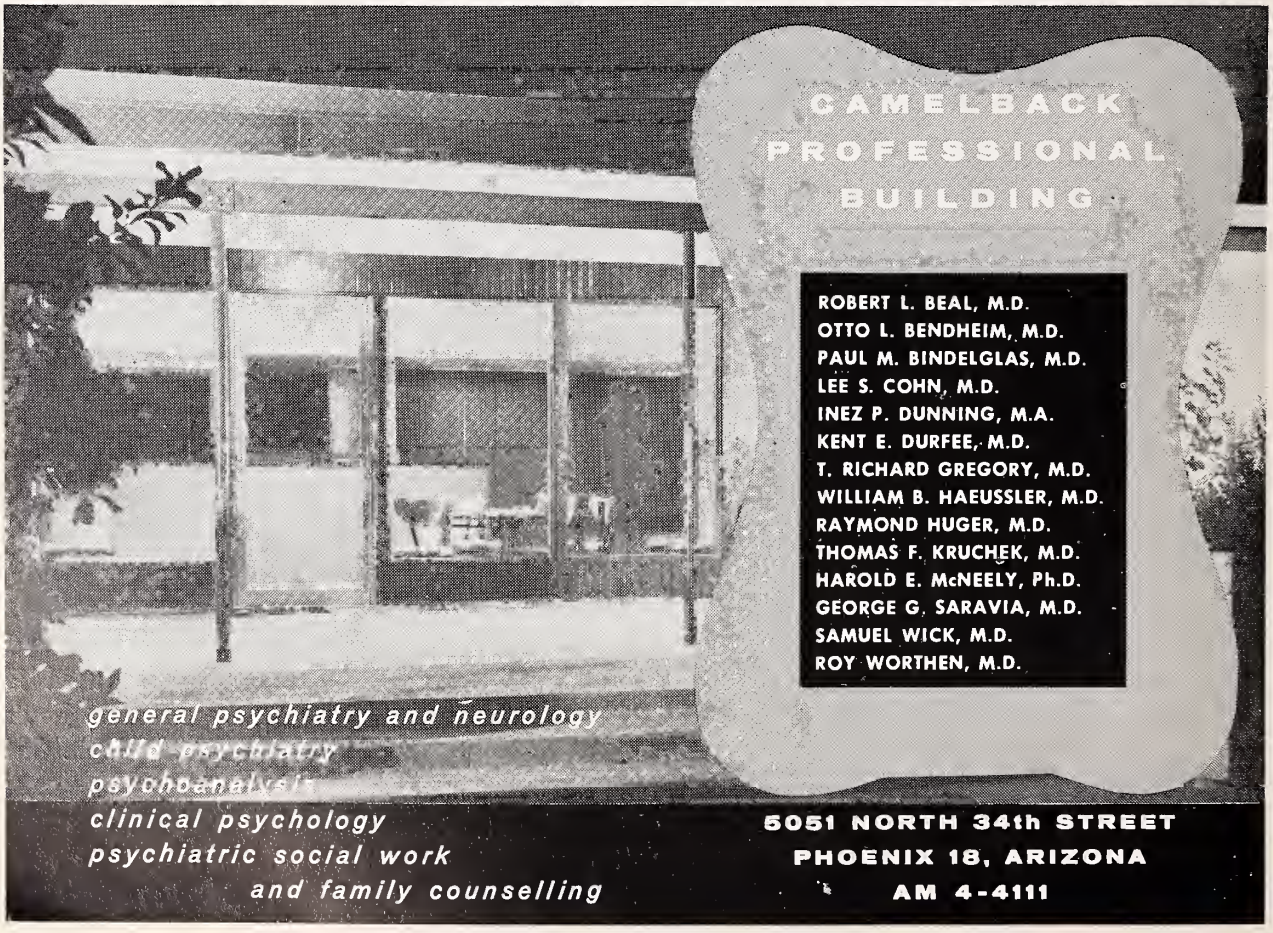
FINALLY, and we think most importantly, these offices and executive staffs are available to serve medicine at medicine's convenience; do not hesitate ever to call or visit at any time should they be in a position to be helpful.

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Essentially the state journal is the tie that binds. It is the visible thread that runs from one corner of the state to the other. It is the only such ligature. It is an opinion medium for legislative, medicolegal, organizational, economic, and administrative topics. It is the officers' way of reaching the membership; and it is the members' way of letting the officers know what they — the members — think. It is a portable bulletin board for telling the readers what's going on.

Without this liaison among members, their esprit-de-corps, their feeling of professional identification, and their sense of organizational identity might well atrophy.

— Henry A. Davidson, M.D., in *Journal of the Medical Society of New Jersey*, 61:1 (Jan.) 1964.



OPPORTUNITY — EXCEPTIONAL

by

Leslie B. Smith, M.D.

Senator Barry M. Goldwater, our fellow Arizonan, friend and neighbor, the worthy exhalted nominee for the Presidency of our Country, has always expressed his sincere belief that our free-enterprise system has produced the best methods to provide the highest quality and the greatest quantity of medical care to the greatest number. He has frequently voiced his deep concern because Medicine has been about to be further socialized by more Federalization.

Two years ago our nominee remarked "If American doctors would just stay awake I think we can keep this crackpot thing (Medicare) off the books." This we have been able to do with the hard work of a relative few by very narrow vote margins. Candidate Goldwater's candidacy will have the same effect on the future of Medicine as The Wall Street Journal on July 17, 1964, stated that it would have in general — "If nothing more, the very existence of a conservative Presidential nominee may well exert a moderating influence on the whole trend to centralized power. For a time at any rate the people will be able to hear what too long has been muffled; that an intellectually respectable, politically and economically workable alternative exists to the deadening course toward the authoritarian State.

We must not pass up this almost miraculous opportunity to preserve our liberty and the freedom of our patients. We must do more than our exceptional friend, Barry, challenged — stay awake. We must join forces with him and the great majority of the citizens to stem the transfer of the practice of medicine from the doctors to the politicians in Washington, D. C. To do this we must concentrate more of our mental and physical prowess to spread the truth about Medicine, its doctors, its quality, its distribution, its relative cost, hospital costs and its superiority to that which has existed or exists in any other country today; that government control of medicine has and will always downgrade Medicine in all its phases. We must do this even though it may seem that we are infringing on our patient's time as a captive audience. It is much better that we evoke the wrath of about three to five percent, who are expected to be against most anything, than to be proved guilty of not trying to protect the vast majority and have them cry out "Doctor, why did you not trouble to warn us? It was your duty to do so because only you are qualified to properly make judgments in Medicine."

A few dollars given to this cause could never be better invested; don't forget it takes some cash. Let us make no mistakes! This is an opportunity which can never be exceeded and if we are sincere, as we have professed, we may in some instances have to cast aside a few minor prejudices of a personal nature for the good of our fellow man and those who are to follow.

Our cause is right — our opportunity is exceptional — our Barry is with us. Let us not forsake our obligation to society which not only demands that we give good medical care today, but, also, that we are obligated to pass it on to the future.

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Dr. Waldron

Disaster Medical Care—Part I

by
Carl W. Waldron, M.D., D.D.S., F.A.C.S.

WHAT constitutes a disaster in terms of the number of persons injured? Existing medical facilities and planning to receive and care for the victims will largely determine what is in effect a disaster situation for the hospital. For example, in metropolitan areas with a number of large hospitals approved by the Joint Commission on Accreditation, and meeting the required two disaster exercises each year, twenty or more casualties may be accepted by most hospitals that have so planned for such emergencies. This requires pre-disaster assignment of nonprofessional, health, and professional personnel and plans for the best utilization of floor space and increase in bed capacity.

In contrast, a one or two-car accident with several seriously injured persons taken to a small community hospital is a real mass casualty disaster situation for the hospital and for the one or more physicians available according to James H. Spencer, M.D., F.A.C.S.*

He defines mass casualties as "a sudden concentration of casualties that overwhelms the existing medical facilities." In discussing a two-car crash he states there "may be one driver having a crushed chest with pneumothorax and a fractured femur, a passenger with a fractured pelvis and a ruptured bladder, two with head injuries producing coma, and three others suffering from multiple fractures and profound shock. Such a catastrophe in a rural area with only one physician, however capable, constitutes mass casualties."

"The rural physician might, by superhuman effort and in a minimum of time, introduce a catheter into the chest of the driver victim and institute underwater seal drainage, direct that a Thomas splint with moderate traction be put on the femur, get a catheter into the ruptured bladder, do tracheoctomy on one of the head victims showing respiratory distress, direct infusion of dextran for the three shock victims as well as the application of splints to reduce further shock, provided the physician had in his little hospital one or two good orderlies and some nurses who knew how to take and record blood pressures and insert intravenous needles. If he did all these things well enough and soon enough, he might then have seven living patients, showing enough improvement to justify more deliberate evaluation, and he could then plan his priorities for definitive treatment and summon whatever professional assistance he might need. I can assure you, however, that unless he had pictured himself in such a situation before and made some plan of attack, he wouldn't get all these things done well enough and soon enough and he wouldn't have seven live patients."

THE AMERICAN Medical Association, through its Committee on Disaster Medical Care, the American College of Surgeons Trauma Program, and the American Hospital Association Disaster Program, is concentrating on the problems of caring for large numbers of casualties resulting from tornadoes, hurricanes, floods or other natural disasters; plane, train, bus wrecks, explosions, fire, etc., etc. Effective hospital organization and planning for such emergencies will provide units for the Department of the Army and other services in case of war.

*SPENCER, JAMES H., M.D., F.A.C.S. "Mass Casualties in the Civilian Hospital." **Bulletin, American College of Surgeons.** Volume 48, Number 6, Page 342. November-December 1963.

Spencer further states that "Pre-disaster planning is simply a phase of preventive medicine and the physician or hospital administrator who turns up his nose at it, puts himself in the same category as the parent who refuses immunization for his child because he 'doesn't believe in shots'."

In the opening paragraph of his comprehensive article he emphasizes that "The care of mass casualties involves a professional philosophy distinct from that followed in the private practice of medicine. It may be summarized as pointing toward the greatest good for the greatest number. Whether the cause of the casualties is enemy action or other disaster, the plan for their care requires pre-disaster thinking, if confusion and chaos are to be avoided."

All hospitals should have disaster committees representing the administration and all departments and activities of the hospital. In small hospitals the entire staff might well be included on the committee with one or more physician staff members sitting in as ex-officio members. Large hospitals with large active and associate medical staffs should have, in addition, a professional disaster committee. In metropolitan areas with several hospitals and overlapping staff memberships, this committee should be comprised of physicians who ordinarily send most of their patients for hospitalization to the given hospital. This type of hard core committee is familiar with the hospital facilities, staff personnel, and can plan and function better in emergencies.

THE HOSPITAL committee is responsible for the coordination of all aspects of preparation of the facilities for receiving and caring for patients including parking and arrangements for traffic control. Most hospitals can increase their bed capacity by fifty percent, or more. This requires additional beds or cots and other equipment to be made available on short notice.

Surveys should be made at least once a week to determine how many presently occupied beds could be made available in emergencies by discharging safely certain patients. Other suitable buildings may be surveyed for expansion. Assignments should be made and the duties of the hospital personnel and that of auxiliary personnel enlisted for service, when required, should be outlined. The U.S. Public Health Medical Self-Help Course covers basic training for hospital and auxiliary personnel. Provision should be made for an ample staff to carry dsaster victims from ambulances or other vehicles into the hospital. Drivers should not leave their cars as the unloading zone must be kept clear for incoming casualties.

DR. SPENCER concludes his article, "A disaster plan in a civilian hospital is a cooperative venture. It is not just a medical staff activity, nor an administrative exercise, nor a facet of the training program for nurses; the plan is all these and more. It is a scheme of action calculated to assure that the hospital will not be found wanting when confronted with a massive emergency for which experience has not prepared it. It requires subordination of personal and selfish desires in the interest of total achievement. A hospital which lacks such a plan, or fails to rehearse it periodically, is not keeping faith with those who make the institution possible."

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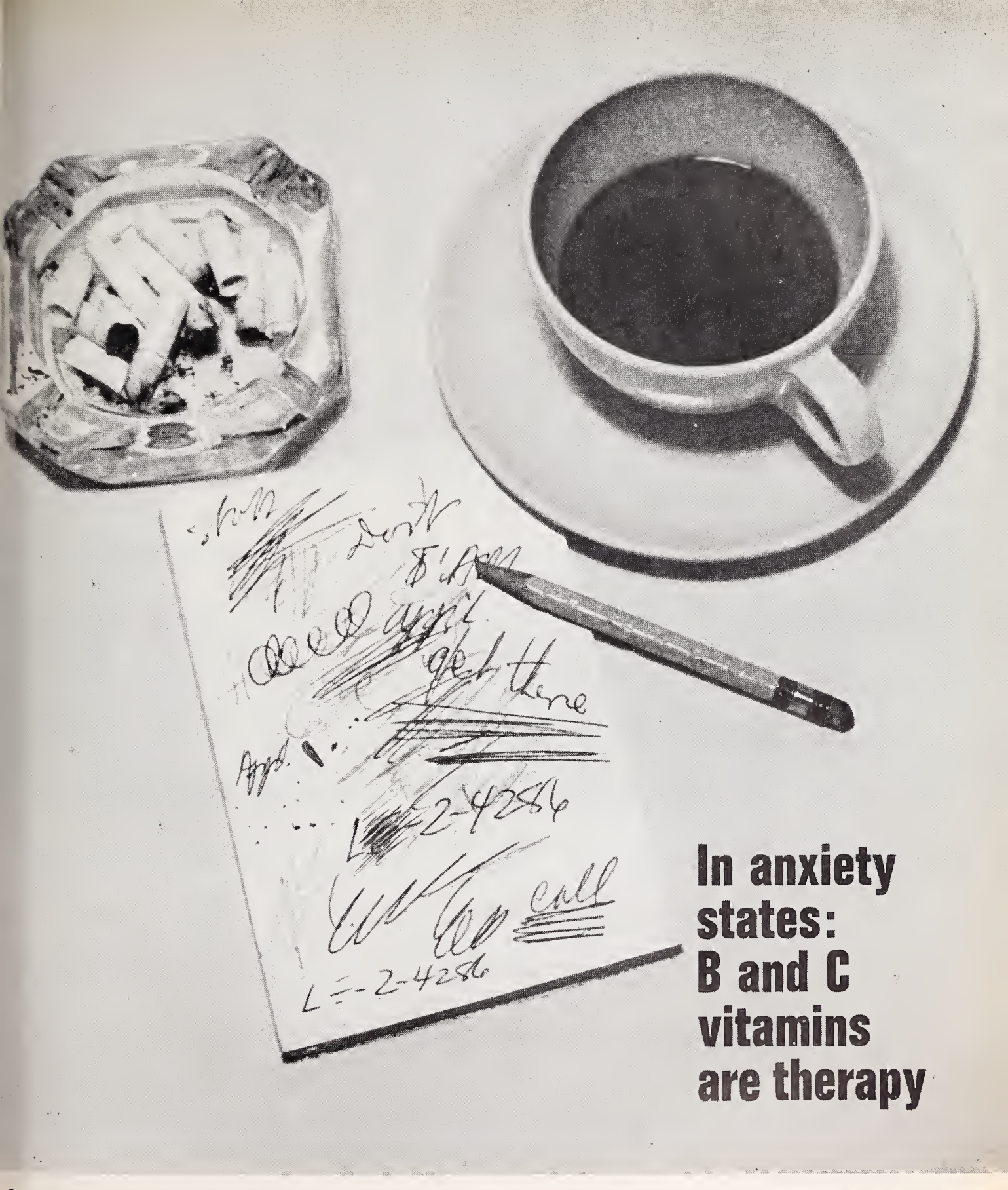
Benefits paid by the 77 Blue Shield plans in the United States, Canada and Jamaica topped the billion dollar mark for the first time in 1963.

A total of $1,066,734,309 in benefits was paid to doctors for their services to a record number of subscribers and dependents. Blue Shield 1963 membership increased 2,545,635, up 5 per cent from 1962, to an all-time high of 53,450,349.

Blue Shield plans covered 26.41 per cent of the United States population and 21.07 per cent of the Canadian population in 1963.

The percentage of those covered in the United States increased in 1963, with Canadian Blue Shield coverage up over one-third that of 1962.

Blue Shield plans had 1963 enrollment gains totaling 1,627,798 while new plans in Memphis and Montreal added 917,837 additional members.



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Vitamin B_2 (Riboflavin)	10 mg.
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Vitamin C (Ascorbic Acid)	300 mg.
Vitamin B_6 (Pyridoxine HCl)	2 mg.
Vitamin B_{12} Crystalline	4 mcgm.
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Recommended intake: Adults, 1 capsule daily, for the treatment of vitamin deficiencies. Supplied in decorative "reminder" jars of 30 and 100, bottles of 500.

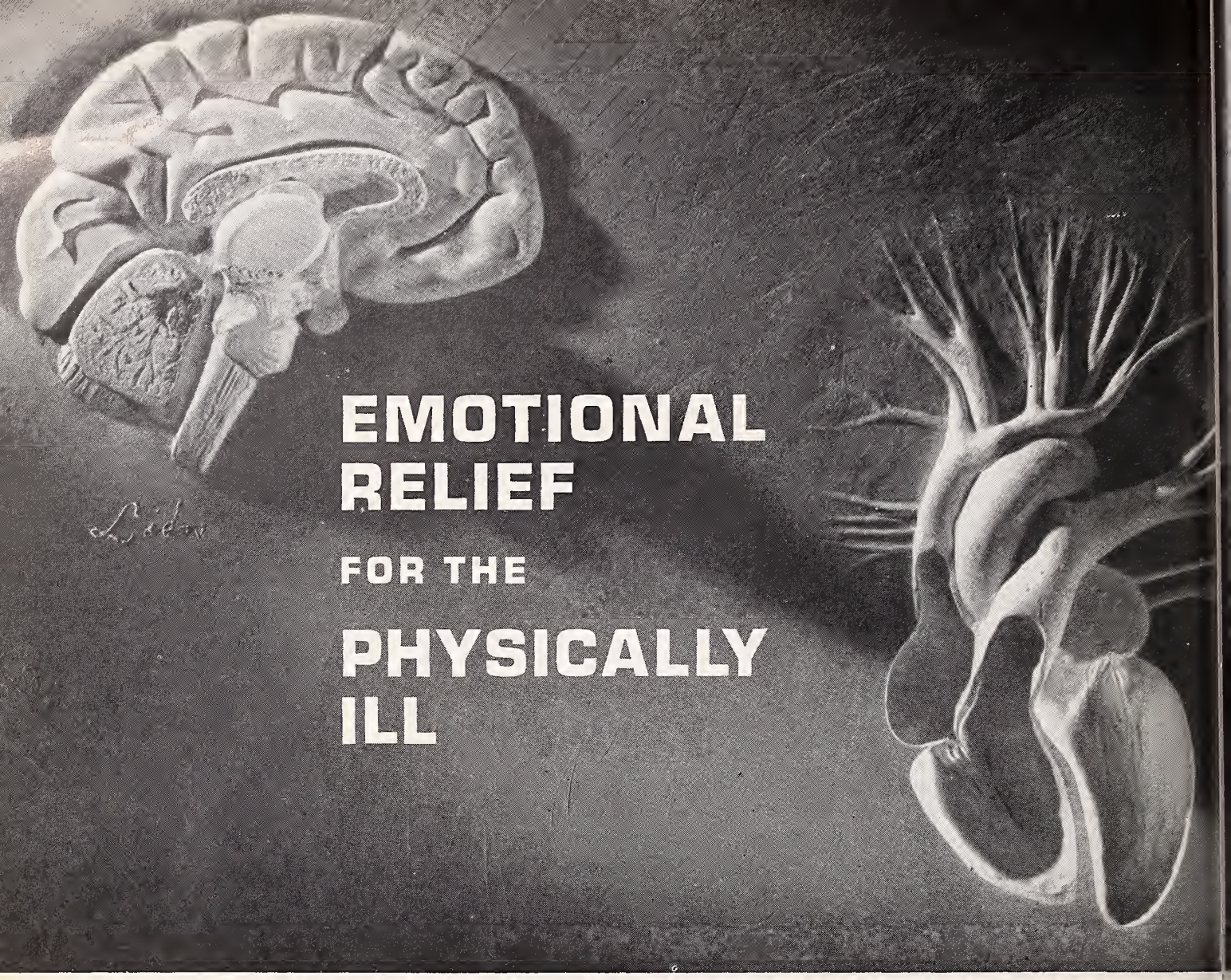
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. . . keeps the patient calm, and the mind clear.



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Precautions: Should administration of meprobamate cause drowsiness or visual disturbances, the dose should be reduced. Operation of motor vehicles or machinery or other activity requiring alertness should be avoided if these symptoms are present. Effects of excessive alcohol may possibly be increased by meprobamate. Prescribe cautiously and in small quantities to patients with suicidal tendencies. Massive overdosage may produce lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction; withdraw gradually after prolonged use at high dosage.

Complete product information available in the product package, and to physicians upon request.

Usual adult dosage: One 400 mg. capsule or two 200 mg. capsules at breakfast; repeat with evening meal.

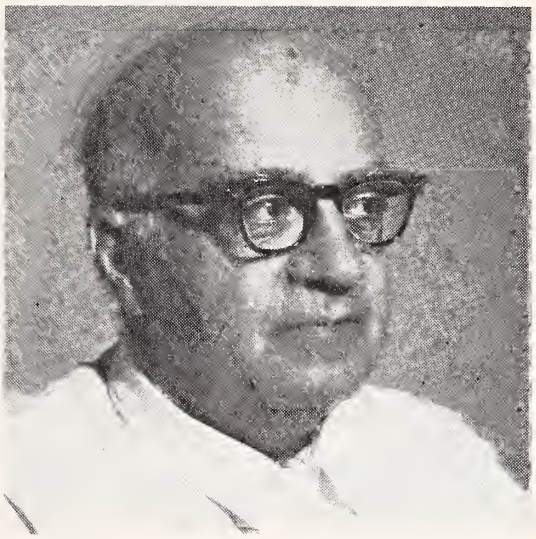
Supplied: 'Meprospan'-400 (meprobamate 400 mg.), 'Meprospan'-200 (meprobamate 200 mg.), each in sustained-release capsules. Both potencies in bottles of 30.

CME-760

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HUBERT JOACHIM ADLER, M.D.

1894 — 1964



Dr. Adler died unexpectedly in his home on May 2nd, 1964.

He was born in Prague, Czechoslovakia. His father, Guido Adler, PhD., professor and director of the Department of History of Music, Vienna University, was an international celebrity. Dr. Adler inherited the scholarly attitude and the urge to be a perfectionist in his chosen field, ENT.

He was graduated as an M.D. from Vienna University in 1921, went into surgical and ENT residency training from 1921 to 1925 at one of the then famous Viennese University Hospitals and then went into private practice as an ENT specialist in Vienna from 1925 to 1938, serving also as an ENT consultant to various hospitals.

Under the threat of Hitler he emigrated with his family to the U.S.A. in 1938 and started his medical career all over as an intern and ENT resident in Seattle, West Virginia and Chicago; finally he went once more into private practice in New Jersey from 1944 to 1949.

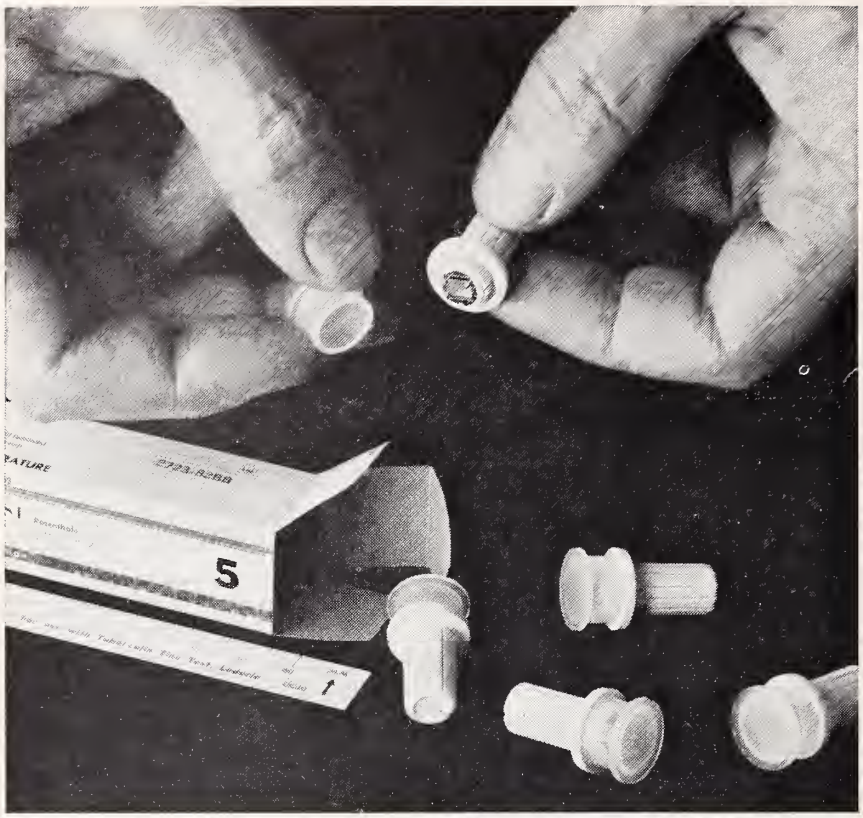
In 1949 he became Chief, ENT Service, as a civilian employee of the U.S. Army in Fort Meade, Md., and later in Camp Kilmer, N.J.

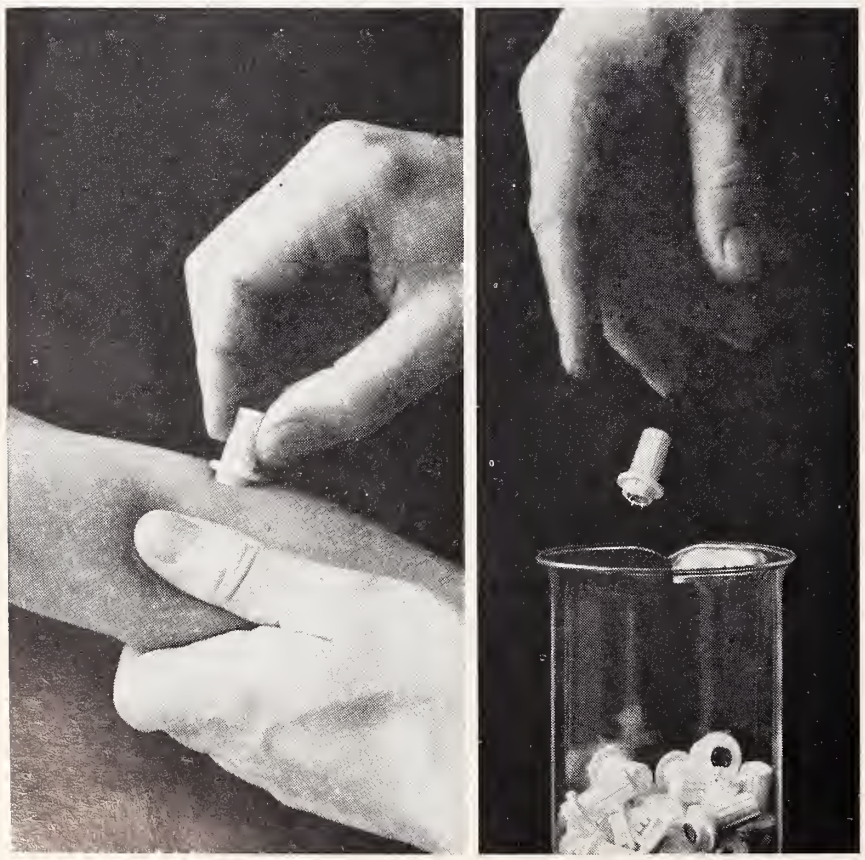
In 1953 the Veterans Administration appointed him as an ENT physician. He has served in that capacity an untold number of veterans in the VA Hospital Phoenix to his end.

A scholar all his life, he spent much of his spare time and part of his vacations in medical libraries and issued a long list of scientific publications dealing with surgical, technical and ENT problems in addition to published correspondence in German, British and American medical journals. Plans for a new research project were interrupted by his death.

His sincere interest in every single one of his patients, his warmhearted personality won him many friends who already sorely miss him. Our sympathy goes out to his bereaved family. He will not be forgotten by his patients and friends.

Leo Reich, M.D.





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Robert Lorenzen, M.D.
Editor-in-Chief, Arizona Medicine
P.O. Box 128, Phoenix, Arizona

Dear Sir:

As is well-known, the Cancer Chemotherapy National Service Center has discovered a number of compounds which are of palliative value in various forms of cancer.

It would seem logical to conclude that chemical agents capable of producing a diminution of tumor size, or otherwise capable of affecting the malignant process after it has established itself, would attack a cancer which is just beginning. Under these circumstances the growth would perhaps not be able to get started. Thus we arrive at the very simple idea that these chemotherapeutic agents may serve as *preventives* of the disease if they are taken continuously in maintenance doses during the life of any individual.

As nearly obvious as this conclusion is, a survey of "Chemical Abstracts" has shown us that no general idea of this sort seems to have been advanced, although a few scattered references have been made to single compounds as possible prophylactics.

One way to test the theory would be to secure a number of mice belonging to a strain which will normally develop a high incidence of cancer. These mice would at an early age be divided into two groups, one of which is given maintenance doses of a known anti-cancer agent, while the other group, untreated, would constitute the controls. Any significant difference in the number of cancer cases developing in the two groups would be a first test of the feasability of the idea.

Extension of the test to higher animals and eventually to humans, should it prove successful with the mice, would be a long and tedious process, but in our opinion well worth while, as we feel certain there are many who would welcome even some degree of prophylaxis against this dread disease.

We believe the chances of success, while admittedly completely unknown, are great enough to justify launching a campaign for funds. These would need to be reasonably modest to secure results which would indicate as a first approximation whether any hope lies in our plan.

Donald L. Vivian, Ph.D.
Professor of Pharmacy
University of Arizona
Willis R. Brewer, Ph.D.
Dean
University of Arizona

Robert F. Lorenzen, M.D., Editor
Arizona Medicine
P.O. Box 128
Scottsdale, Arizona 85252

Dear Dr. Lorenzen:

The second annual Community Health Week, sponsored by the American Medical Association, will be observed October 18-24, 1964. This has been planned to attract public attention to the medical and health facilities existing in all communities.

All communications media, particularly radio, television, and newspapers, will encourage recognition of the achievements of medicine and public health during the past few decades, as well as point up the need for local responsibility for the development of community health facilities. We hope you will call the attention of your readership to the importance of Community Health Week and its objectives by appropriate announcement or editorial comment.

The factors contributing to more healthful living include, among others, the development of modern hospitals, the expansion of public health facilities, the growth of health insurance programs, public awareness of good health practices, regular counseling with a family physician, the use of available immunizations, the avoidance of quacks and charlatans, and the recognition of the inadequacies of self-diagnosis and self-medication.

In addition, you may wish to emphasize the need to take stock of our present health assets and our responsibility to make certain that the high standards of health protection and service we enjoy today will be adequate for the needs that will arise in the future.

Sincerely,
F. J. L. Blasingame, M.D.,
Executive Vice-President,
American Medical Association

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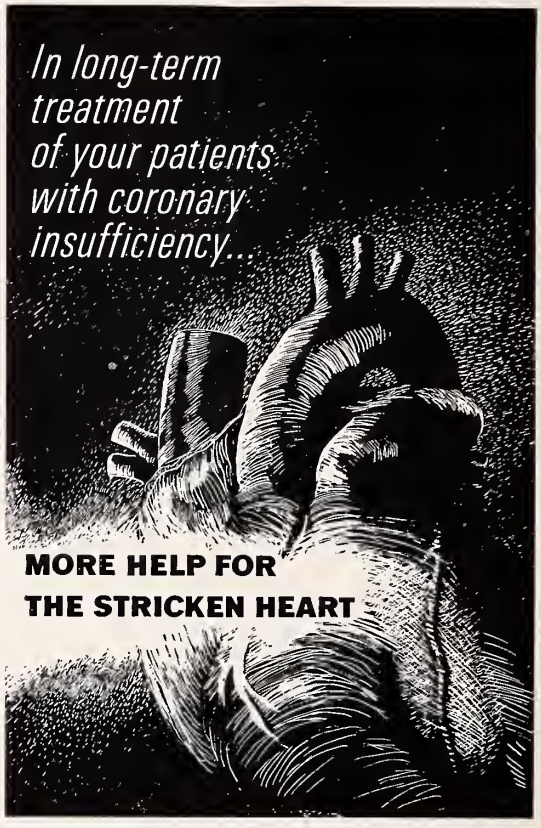
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Side effects: Pentaerythritol tetranitrate may infrequently cause nausea and mild headache, usually transient. Slight drowsiness may occur with meprobamate and, rarely, allergic reactions. **Precautions:** Meprobamate may increase effects of excessive alcohol. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction. **Contraindications:** Like all nitrate-containing drugs, 'Miltrate' should be given with caution in glaucoma. *Complete product information available in the product package, and to physicians upon request.* **Dosage:** 1 to 2 tablets, *before meals* and at bedtime. Individualization required. **Supplied:** Bottles of 50 tablets.

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WALLACE LABORATORIES / *Cranbury, N. J.*

ARIZ. BOARD SAYS FACTORIES MUST BUY ONLY FROM PHARMACIES

Board rules that first aid stations are not intended to 'provide repeated treatment'

First aid stations in industrial plants must obtain their drugs from a pharmacy, rather than directly from a manufacturer or wholesaler, the Arizona pharmacy board has declared.

In a statement dealing with the handling of drugs in industrial first aid stations, the board pointed out that "industrial medicine is not meant to replace the family physician. It is not meant to provide repeated treatment."

Accordingly, the board said, "the variety and quantity of medications allowed at an industrial first aid station must be kept to a minimum, and must be only sufficient to meet the needs of the individual station. . . . Relatives of employees and other non-employees should not receive professional, medical or pharmaceutical services through such stations."

Purchasing: With respect to the purchasing of drug supplies, the board pointed out that a manufacturer or wholesaler is permitted to sell drugs in Arizona only to a person or company that holds a license from the board. Therefore, the board said, an industrial first aid station must obtain its drugs from a pharmacy.

The board noted that, while drugs ordered for a first aid station may be billed to the company, the order must come from the physician in charge of the station.

Single Dose: The pharmacy board pointed out that a nurse at a first aid station is authorized to issue only a single dose of medication to a patient . . . but may not issue more than one dose.

"If an employee requires more than one dose of a medication, or additional pharmaceutical services, the industrial physician should write or phone a Rx order to a pharmacy," the board said.

NEW U.S. DRUG REGULATIONS BRING FEWER PRODUCTS AND BOOST COSTS

The government's restrictive regulations agains the drug industry have in one year's time resulted in fewer new drugs and raised manufacturing costs to unrealistic proportions, the Pharmaceutical Manufacturers Association said in a recent issue of *The New Physician*, the journal of the Student American Medical Association.

"Some of the worst fears of a year ago have been realized," the article said, adding: "there have been fewer new drugs; those that have appeared have arrived at a slower pace, and it is costing more than ever before to make a new drug product available."

The article, written by C. Joseph Stetler, Washington, D.C., executive vice-president and general counsel of the Pharmaceutical Manufacturers Association, charged that the new regulations call on researchers and sponsors to fill out lengthy government forms, submit detailed investigational plans, and render regular reports as an investigation progresses.

He said that the Food and Drug Administration "now must give its affirmative approval before a new drug can be marketed, and pass on questions of effectiveness as well as safety."

"As a result," Mr. Stetler said, "the regulations have imposed excessive burdens on clinical investigators, destroyed much of the value of trade names, underestimated the physician's intelligence, tended to substitute bureaucratic for scientific judgment, and in some instances they clearly go beyond the intent of Congress."

Mr. Stetler said his Association, representing 140 drug manufacturing firms, completed a survey which showed that "10 pharmaceutical companies, several of them among the nation's major producers of ethical drugs, reported drastic curtailment of research and development operations in 1963."

"One major company reduced its research staff by 55. Another company claims that of 67 agents 'out' for clinical trial as of July 1962, only 17 were continued. Another firm acknowledged that 90 investigations were discontinued, 20 of which were almost complete. Still another company dropped 30% of its projects, though all were rated 'good' to 'enthusiastic' by research personnel.

"Other firms reported a cutback in the number of projects undertaken despite increased research and development expenditures. Two midwestern companies closed their research departments. Others considered initiating more research abroad, and still others merged with stronger firms. It is estimated that a total of 600 investigations planned before the new drug regulations went into effect have been cancelled or postponed."

Another serious drawback, Mr. Stetler said, is "the exodus of research talent to other, less regulated scientific fields."

Continuing, he said:

"Many express the fear there may be fewer drugs in the years to come if the law and regulations are not modified. The trend has been downward since the start of the investigation of the drug industry on December 7, 1959. In that year, a record 62 completely new products were placed on the market. This number fell to 39 in 1960, 34 in 1961 and 28 in 1962. On the basis of early returns, this number may be as low as 14 for 1963.

"Before enactment of the new regulations, it took five to six years, on the average, to place a truly new drug discovery on the market. Unless the regulations are modified, this time may be extended to 10 years. Thus, the tempo of discovery and development could be set back a decade, with other products being delayed until the log jam breaks. The question arises as to how many individuals may suffer or die unnecessarily during this period for lack of a drug that isn't available because of excessive demands in the regulations."

Mr. Stetler pointed out in *The New Physician* article that the survey showed a sharp rise in production costs during the last year.

"The average cost of producing a uniquely new drug product was estimated at 8.5 million dollars before the regulations took effect. Estimates indicate the cost of producing a new drug under the new regulations may approach 10 million dollars. This is due to many factors. Those related to the regulations are increased administrative costs, additional complicated and costly animal testing, and foreign competition. Inevitably, these higher production costs will be reflected in higher prices."

Source: PMA Newsletter

BLUE *Shield*

matters of editorial interest to the medical profession

The success of Blue Shield is based almost entirely upon people — people serving other people when they are hurt or ill. It is a remarkable humanitarian concept of modern times.

This action demonstrates an accord among those comprising the medical profession in the furnishing of needed medical services. Equally, it demonstrates a responsiveness on the part of the public to be members of Blue Shield. This indicates a positive desire on the public's part to extend the free enterprise system and in no way have it impeded by federal controls of one sort or another.

Also entering this picture is Blue Shield itself — an organization devoting itself solely to furthering the service of medicine to the patient, acting as it does as a two-way avenue between the medical profession and the Blue Shield membership in aggregate. The Blue Shield organization facilitates the service by accelerating the approval of claims for the subscribers and reimbursing on schedule the medical profession for rendering these services.

The most important factor of all is that this is a logical and economical way of providing health care for those who need it.

There have been some highly artistically designed theorems advanced in recent years that would see the federal government disturb this amiable and realistic working agreement between the peoples involved. Every effort should be made by the medical profession, by the public and patient, too, and the Blue Shield organizations, to see that this cherished, unwritten contract remains a part of our heritage and is never in any way impugned.

If any one of the three elements comprising this working agreement is ever made ineffectual, any chance of survival for the other two will be nil.

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WHY DON'T YOU INCREASE THE ANESTHETIST SCHEDULE?
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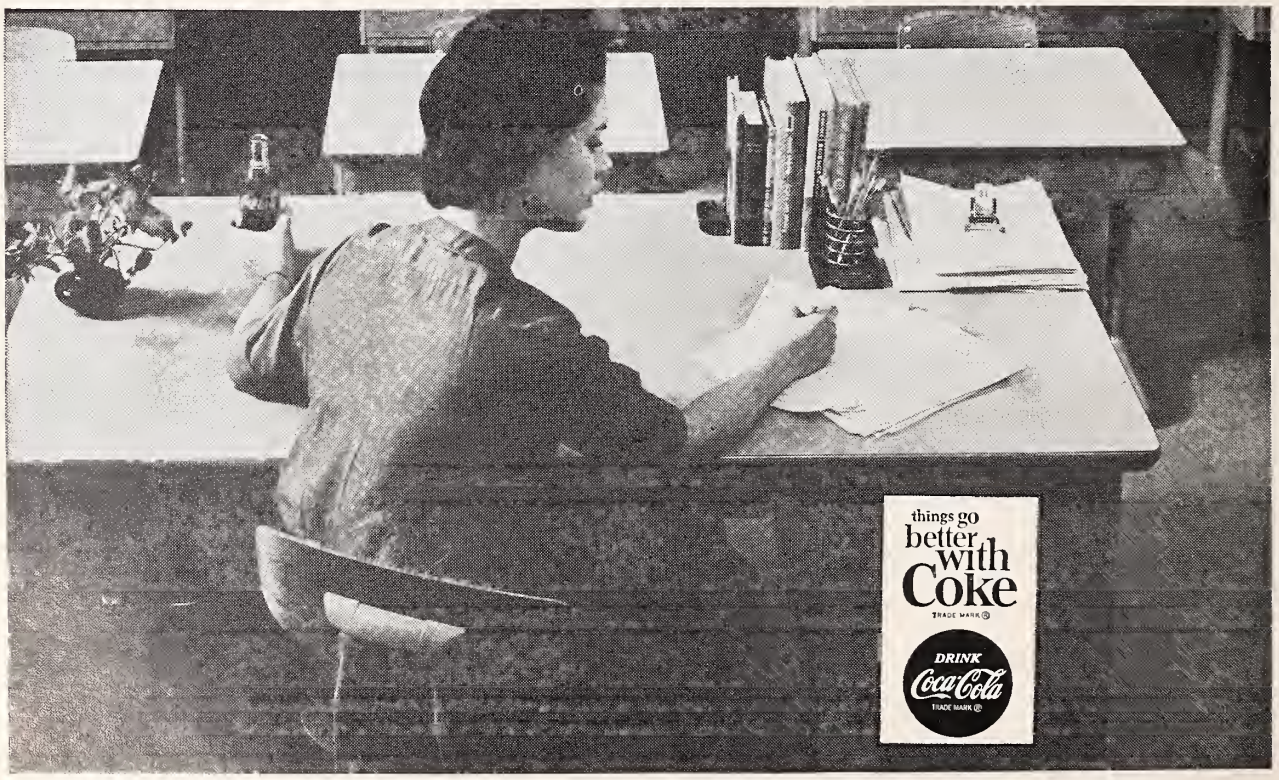
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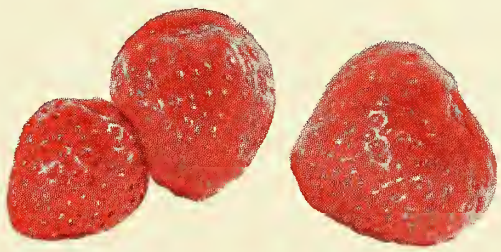
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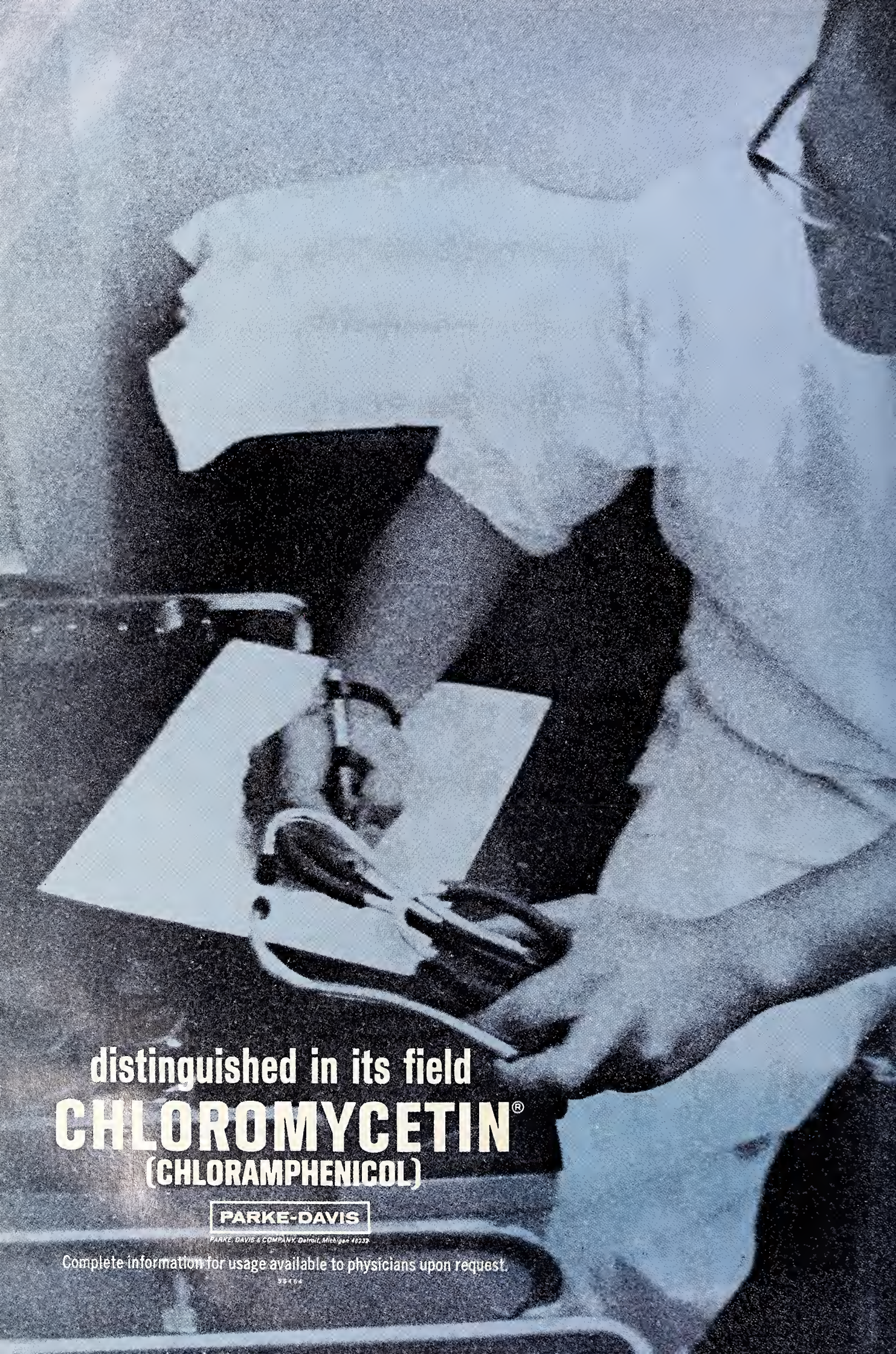
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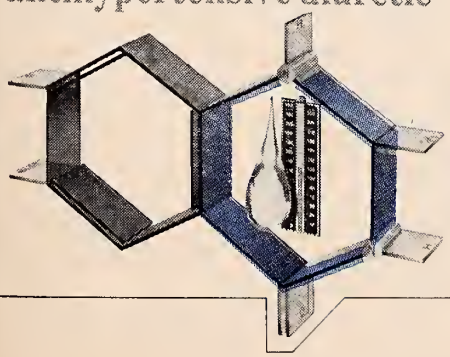
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1. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. J. Amer. Geriat. Soc. 11:945 (Oct.) 1963.

2. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, California, Nov. 25-28, 1962.

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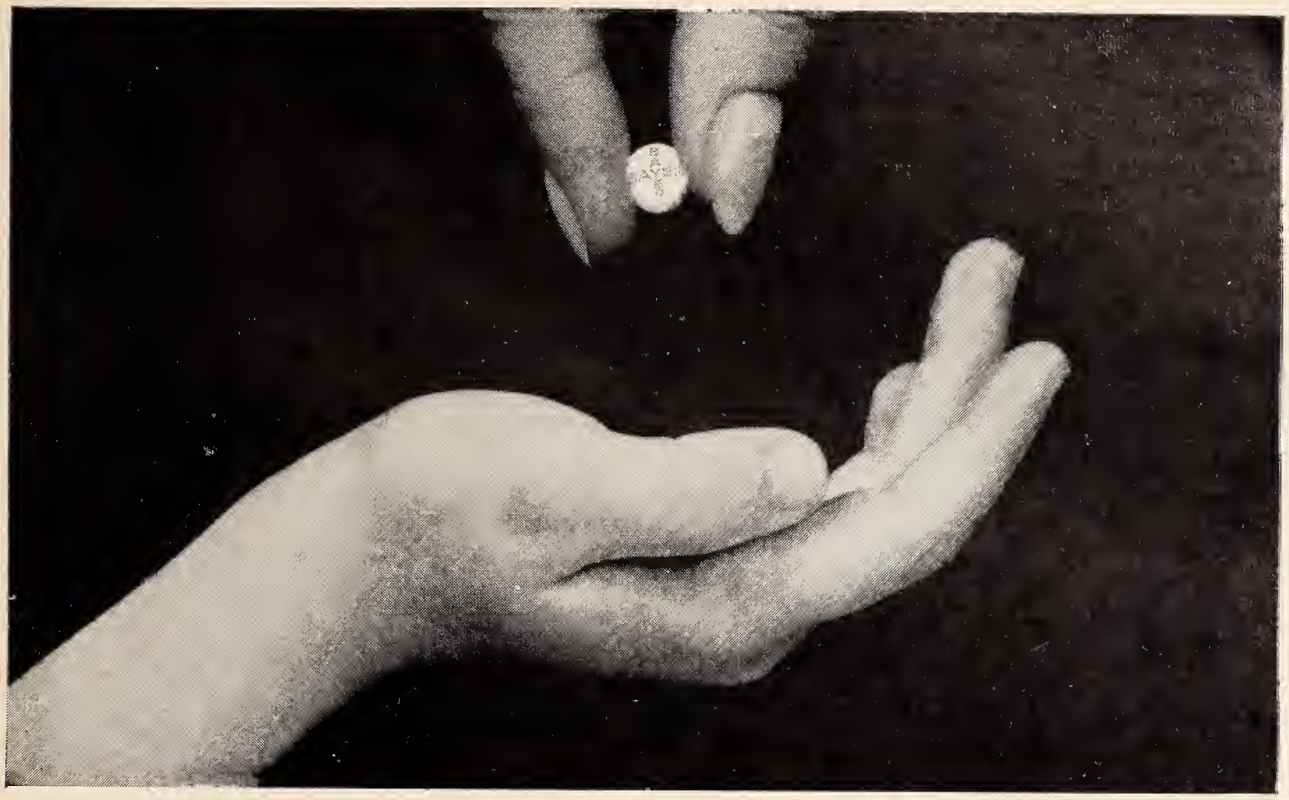
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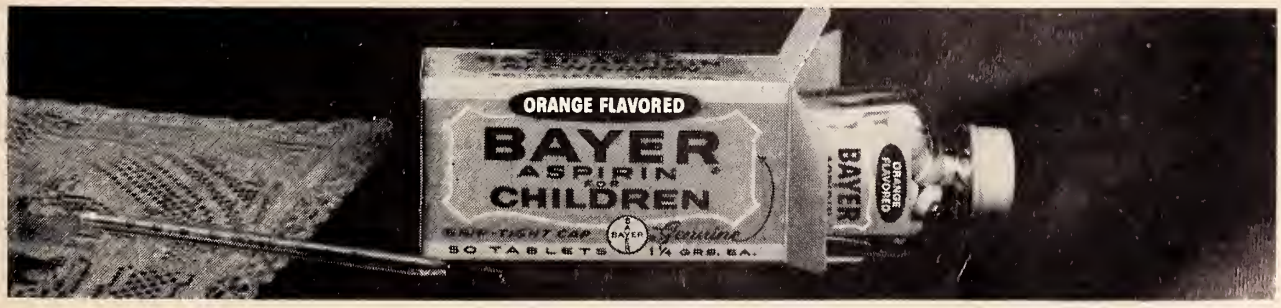


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Complete officer and committee listings will appear in the December issue.

RESUMÉ of the HOUSE OF DELEGATES — 1964 ANNUAL MEETING

Adjourned meeting of the House of Delegates of The Arizona Medical Association, Inc. held in the Garden Room West of the San Marcos Hotel, Chandler, Arizona, Friday, May 1, 1964, convened at 3:05 P.M., Walter Brazie, M.D., Speaker of the House, presiding.

CREDENTIALS

The Committee on Credentials reported a quorum present and the House duly constituted.

ROLL CALL

On the roll call, 66 Delegates (or alternates) and 21 members of the Board of Directors, were present.

MINUTES

Minutes of the meeting of the House of Delegates held April 29, 1964, were approved without reading.

ELECTION OF OFFICERS

The following officers were elected for a term of one year:

President-elect, James E. O'Hare, M.D.
Vice President, Paul B. Jarrett, M.D.
Secretary, Charles E. Henderson, M.D.
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Editor-in-Chief, Robert F. Lorenzen, M.D.

The following were elected for a term of two years (1965 and 1966):

Delegate to AMA, Lindsay E. Beaton, M.D.
Alternate Delegate to AMA, William B. Steen, M.D.

RESOLUTIONS PASSED

The following Resolutions were passed by the House of Delegates. Resolution Nos. 11, 21 and 30 are printed in their entirety. The remainder are shortened or summarized for the sake of brevity.

Resolution 1 thru 12 and 22 are amendments which will be incorporated in the new revised By-Laws. Resolution No. 16 was printed in the August issue.

1. RESOLVED, that the delinquency date of ArMA dues and receipt of AMA dues be changed from April 1 to February 15.
2. Due to overlapping areas of responsibilities of the Professional Liaison Committee, and Medico Legal Committee, the activities of these groups will be incorporated in the Professional Committee.
 The committee will be responsible for all professional aspects of medicine, other than the economic and legislative areas, such as General Medicine (cancer, diabetes, arthritis, alcoholism, deafness and blindness); Mental Health; Aging; and Public Health, in its many facets (maternal and child health, school health, water and air pollution, and venereal disease); and Industrial Health. It will maintain liaison with allied and para-medical professions and groups and interest itself in medico-legal and medico-religious proglems. Further, it will concern itself with disaster medical care; medical education at all levels; and the Arizona Medical School. At least one member of the committee will serve as advisor to the Women's Auxiliary of ArMa and he will be chosen from the same geographic area of the State as the current President of the Woman's Auxiliary.
 Each committee member, except the Chairman, shall serve as chairman of a sub-committee for a particular activity. The Chairman may also serve as the chairman of a sub-committee. The sub-committee shall be appointed by the President of the Association, with the advice of the Chairman of the Professional Committee.
3. **Changes in Medical Economics Committee**
 This committee shall consist of at least six members bers appointed on a geographic basis and with due consideration of the specialties and general practice. This committee shall deal with all matters affecting the economic status of doctors of medicine except those factors relating to the Industrial Commission of Arizona. Sub-committees will be set up within the committee and these may be enlarged as necessary. The purview of this committee shall include 1) Medicare Contracts; 2) Health and Accident Insurance, Office Expense Insurance and Group Liability insurance; 3) Organized Welfare and Charity Work; 4) Retirement and Investments, including Group Investments for members.
4. Since the Board of Directors cannot delegate its judiciary powers, Chapter VII, Section 4. Subsection (e) was amended to delete the phrase "and enforcing".
5. Since it is impractical for all committees to meet within one month after appointment, which regularly follows the Annual Meeting of The Arizona Medical Association, Inc., Chapter VII, Section 3. was amended to read, "Each chairman shall make every effort to organize his committee and consider initial business within one hundred and twenty days of the end of the Annual Meeting of The Arizona Medical Association, Inc."
6. WHEREAS, Chapter VII, Section 1. of the By-Laws provides that the "President, President-elect and Secretary shall be voting ex-officio members of all such committees", and
 WHEREAS, it appears that the inclusion of these officers is again provided for in certain sections of the By-Laws in a redundant fashion, now therefore be it
 RESOLVED, that (1) Chapter VII, Section 4. Subsection (a), be amended to read, "this committee shall consist of a Chairman and at least four members, one of whom shall be the Treasurer
 (2) Chapter VII, Section 4. Subsection (c), be amended to read, "this committee shall consist of a Chairman and at least four members, one of whom shall be the Editor-in-Chief
 (3) Chapter VII, Section 4. Subsection (1), be amended to read, "this committee shall consist of at least nine members appointed by the President with the approval of the Board of Directors, one of whom shall be the Vice President."
7. RESOLVED, that this House of Delegates amend the By-Laws of The Arizona Medical Association, Inc., in Chapter IV, Section 1. Who are Officers:— by adding the phrase "the Alternate Delegate(s) to the American Medical Association," to the first sentence thereof, i.e., "The following shall be the offi-

cers of this Association: a Past President, a President, a President-elect, a Vice-President, a Secretary, a Treasurer, a Speaker of the House, an Editor-in-Chief, the Delegate(s) to the American Medical Association, the Alternate Delegate(s) to the American Medical Association and the District Directors."

8. It was RESOLVED, that the House of Delegates amend the By-Laws of The Arizona Medical Association, Inc. in Chapter IV, Section 11. Delegate(s) to American Medical Association:—by adding to the title thereof, the phrase "and Alternate Delegate(s) to American Medical Association", and that this House of Delegates amend the By-Laws of The Arizona Medical Association, Inc. in Chapter IV, Section 11. Delegate(s) to American Medical Association:—by adding the sentence, "In the absence of any Delegate(s) to the American Medical Association at its meetings, the Alternate Delegate(s) shall represent this Association and its members in such meetings according to the rules of that body."
9. It was RESOLVED, that the House of Delegates amend the By-Laws of The Arizona Medical Association, Inc. in Chapter V, Section 3. Terms of Office; Qualifications:—by amending the first sentence of the second paragraph thereof, to read, "The Delegate(s) and Alternate Delegate(s) to the American Medical Association shall be elected in accordance with the By-Laws of the American Medical Association."
10. It was RESOLVED, that the House of Delegates amend the By-Laws of The Arizona Medical Association, Inc. in Chapter V, Section 4. Beginning and End of Term:—by amending the first two sentences thereof, to read, "All Officers except the Delegate(s) and Alternate Delegate(s) to the American Medical Association shall assume office immediately following their election and acceptance of the office. The Delegate(s) and Alternate Delegate(s) to the American Medical Association shall take office on January first of the year following election, or in conformity with any revised rules of the American Medical Association."
11. Amending Chapter V, Section 7.—of the current By-Laws of The Arizona Medical Association, Inc. to provide for a limitation in the total number of District Directors.

 WHEREAS, the rate of growth of the Arizona Medical Association is so rapid that the present formula for election of the Board of Directors will soon lead to a large group that would be unwieldly and impractical as a working Board of Directors; in order to stabilize its size and still give the larger population areas adequate representation, be it

 RESOLVED, that this House of Delegates amend the By-Laws of The Arizona Medical Association, Inc. in Chapter V, Section 7. Geographic Distribution and Election of District Directors—by amending the first sentenee thereof, to read, "There shall be six state districts which shall be designated as CENTRAL (Maricopa County); NORTHEASTERN (Apache, Gila and Navajo Counties); NORTHWESTERN (Coconino, Mohave and Yavapai Counties); SOUTHEASTERN (Cochise, Graham Greenlee and Santa Cruz Counties); SOUTHERN (Pima County) and SOUTHWESTERN (Pinal and Yuma Counties): Four of the districts, Northeastern, Northwestern, Southeastern and Southwestern shall have one director elected from each; the Southern district shall have three Directors; and the Central district shall have five Directors. Terms of District Directors shall not run concurrently."
12. Amending Chapter VI, Section 1.—of the current By-Laws of The Arizona Medical Association, Inc. providing that Alternate Delegate(s) to the American Medical Asosciation are members of the Board of Directors.
13. Savings Accounts Interest Transfer to Loan Fund Program.

 RESOLVED, that all interest accumulated in savings acounts be transferred to the student loan program on a yearly basis, and be it further

 RESOLVED, that all interest accumulated to date be so withdrawn and credited to this account.
14. Providing that the interest earned on Savings Accounts be credited to the Benevolent and Loan Fund Committee; for the Institution of Scholarships; and Directing the Benevolent and Loan Fund Committee to draw up Rules and Regulations for Awards of Scholarships.
15. A program of Immunization Against Smallpox and Tetanus in the State of Arizona.

 RESOLVED, that the Arizona Medical Association go on record strongly in favor of a progarm of immunization against smallpox and tetanus in the State of Arizona and that this program be implemented at the local level.
18. Approval of County Charters in accordance with Chapter 111, Section 6 of the Articles of Incorporation & By-Laws of The Arizona Medical Association, Inc. It was RESOLVED, that the previous issuance of charters to the following named county medical societies is acknowledged and the constitution and By-Laws of the following named county medical societies be, and they are hereby ratified, approved and confirmed as legal, valid and subsisting constitutions and by-laws:

 Apache County Medical Society
 Cochise County Medical Society
 Coconino County Medical Society
 Gila County Medical Society
 Graham County Medical Society
 Greenlee County Medical Society
 Maricopa County Medical Society
 Mohave County Medical Society
 Navajo County Medical Society
 Pima County Medical Society
 Pinal County Medical Society
 Santa Cruz County Medical Society
 Yavapai County Medical Society
 Yuma County Medical Society
19. Department of General Practice in University of Arizona School of Medicine.

 RESOLVED, that the Arizona Medical Association reaffirm its desire to have a Department of General Practice in the School of Medicine, University of

Arizona, Tucson, Arizona, or if the establishment of this type of Department is not found feasible, that some other type of teaching arrangement be made in the school so that every student, upon graduation, will be qualified to go into general practice; and it is the desire, by action of this House of Delegates, that the University School of Medicine grant the M.D. degree only upon the completion of an approved internship based upon the concept of general practice, and be it further

RESOLVED, that the Secretary of the Arizona Medical Association be insrtucted to send a copy of this resolution to the Chairman of the Board of Regents of the Universities of the State of Arizona, the President of the University of Arizona, the Dean of the School of Medicine, University of Arizona, and all state legislators.

20. WHEREAS, The American Medical Association in session assembled took additional recognition of the "importance of the general practitioner as an essential component of American Medicine."

RESOLVED, that the Arizona Medical Association House of Delegates likewise take cognizance of the problem and instruct our Board of Directors to utilize all facilities at its command with deliberate speed to implement the intent of Resolution 68 passed by the AMA House of Delegates, and be it further

RESOLVED, that the Arizona Medical Association Board of Directors report back to the 1965 House of Delegates what actions have been taken in the State of Arizona and what progress has been made in the solution of this serious problem facing the American public, namely, the impending critical shortage of general practitioners to serve the public.

21. Implementation of a resolution passed by: American Cancer Society, Arizona Division; American Heart Association; Arizona Tuberculosis and Health Association.

WHEREAS, the preponderance of the evidence indicates that cigarette smoking is implicated in the genesis of lung cancer, cardiovascular, pulmonary and other diseases; and

WHEREAS, the Arizona Medical Association is concerned in all matters relating to the public health, therefore be it

RESOLVED, that the Arizona Medical Association go on record as advocating the voluntary giving up of cigarettes, and be it further

RESOLVED, that the Arizona Medical Association recommend that physicians advise regarding the dangers of cigarette smoking in their health counseling and community education endeavors, particularly among the teen-age group. It was regularly moved and carried that this resolution be adopted.

22. Amending Chapter IV, Section 1.—of the current By-Laws of The Arizona Medical Association, Inc. to provide that the Alternate Delegate(s) to the American Medical Association be Officers and Members of the Board of Directors.

23. Reappointment of ad hoc committee to study alignment of Blue Shield to include payment for pathology, radiology and anesthesiology services.

24. Recommendation to County Societies that they include a voluntary, non-tax-deductible contribution of not less than $20.00 to AMPAC-ARMPAC on their annual dues statements.

WHEREAS, the American Medical Association founded the American Medical Political Action Committee (AMPAC) by official action in 1961 to give physicians a more effective voice in politics and

WHEREAS, the Arizona Medical Association has approved the establishment of the Arizona Medical Political Action Committee (ARMPAC) as an independent, unincorprated, non-profit, voluntary and bi-partisan body; and

WHEREAS, both AMPAC and ARMPAC have made significant contributions to the political education of physicians and their families and have assisted materially in perserving and furthering constitutional government; and

WHEREAS, both organizations have presented dramatic evidence of the vital necessity for sustaining participation in politics by individuals in the medical profession; and

WHEREAS, physicians and their wives are entitled to have a ready opportunity to support and participate in this political action movement; now

THEREFORE BE IT RESOLVED that the Arizona Medical Association does hereby affirm its support AMPAC and ARMPAC for their dedication to the traditional American system of free enterprise and freedom in the practice of high quality medical care; and

BE IT FURTHER RESOLVED, that this House of Delegates does hereby recommend to County Societies that they include a voluntary, non-tax-deductible contribution of not less than $20.00 to AMPAC-ARMPAC in their County annual dues statement. For 1964 a supplementary bill be sent to each member, and continuing thereafter with the annual dues statement, provided any additional expenses incurred as a result of this action are assumed by the Arizona Medical Political Action Committee.

25. Department of General Practice in the Organization of a School of Medicine.

WHEREAS, the Arizona Medical Association went on record at the 1963 meeting favoring a Department of General Practice in the organization of a School of Medicine and

WHEREAS, the Association was successful in passage of a new Medical Practice Act, and

WHEREAS, it is now discovered that Section 32-1423 discriminates against Doctors of Medicine entering the practiec of medicine immediately following an internship either served within or without the State of Arizona, hence discouraging General Practitioners from establishing their practice in Arizona, be it therefore,

RESOLVED, that this Association direct its Board of Directors to expend every effort to have this inequity corrected, working in conjunction with the State Board of Medical Examiners, in an attempt to resolve this problem under the provisions of the new Medical Practice Act.

26. RESOLVED, that the Arizona Medical Association go on record as expressing their unqualified support of the resoltuion as previously adopted by the Arizona Chapter of the American College of Surgeons; and be it further

 RESOLVED, that attention be given to increasing the salaries of or the supplementary financial arrangements for graduate nurses, so that this field may become more attractive to individuals interested in the profession of nursing.

27. Internal Revenue Service proposed regulations prohibiting professional service corporations from enjoying the benefits of corporate tax sheltered pension plans.

 WHEREAS, the Internal Revenue Service of the United States Treasury Department in its published directives of 1960 stated the professional service associations and corporations that met the so-called "Kintner" standards in states where professional service corporations were legal would be treated as corporations for income tax purposes; and

 WHEREAS, in such situations it is possible for groups of professional people to establish tax sheltered retirement pension plans for themselves and their employees; and

 WHEREAS, the same Internal Revenue Service proposed in the Federal Register of 17 December 1963 to reverse itself by changing its code (section 301.7707-1 and 301.7701-2) to prohibit professional service corporations from the benefits of such tax sheltered pension plans; and

 WHEREAS, the American Medical Association has actively opposed this proposed reversal of policy by communicating with Government officials and by sending a representative to speak at recent hearings on the subject, therefore be it

 RESOLVED, that this House of Delegates go on record as opposing these proposed changes in the Internal Revenue Code; and be it further

 RESOLVED, that the officers and Board of Trustees of the American Medical Association be directed to continue their vigorous actions in this matter; and be it further

 RESOLVED, that the Arizona Delegates to the American Medical Association be directed to introduce at the forthcoming American Medical Association meeting in June, a resolution stating the position of the Arizona Medical Association and calling for a similar statement of position of the House of Delegates of the American Medical Association.

28. No action.

29. Referred to Board of Directors.

30. WHEREAS, the Honorable John J. Rhodes has continued to lead the opposition to all socialization of these United States and particularly the socialization of medicine, as has been proposed in the United States House of Representatives, and

 WHEREAS, this Association wishes to express its appreciation to the Congressman for his continued support, now therefore be it

 RESOLVED, that this Association officially express its sincere appreciation publicly to the Honorable Mr. Rhodes.

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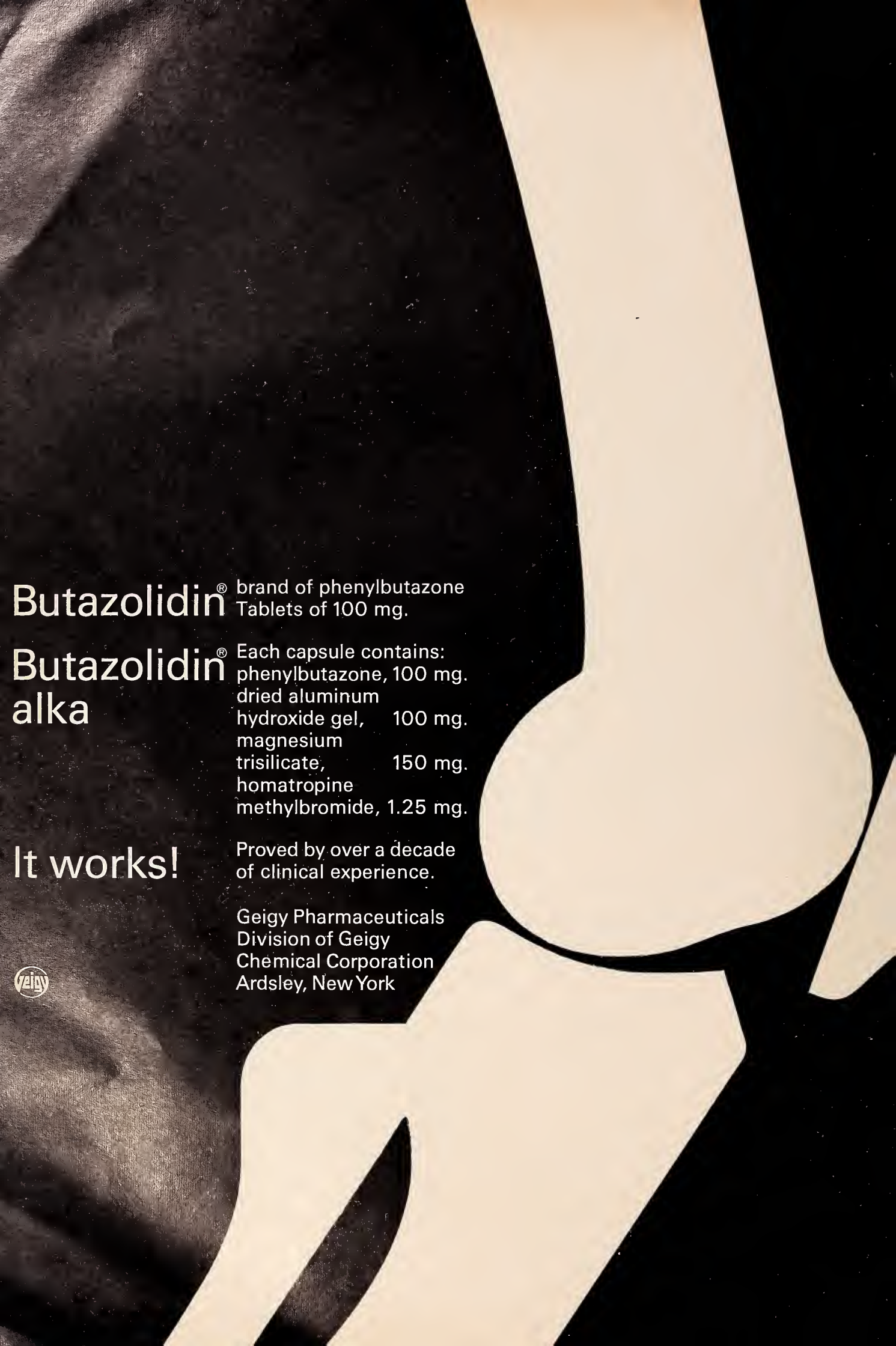
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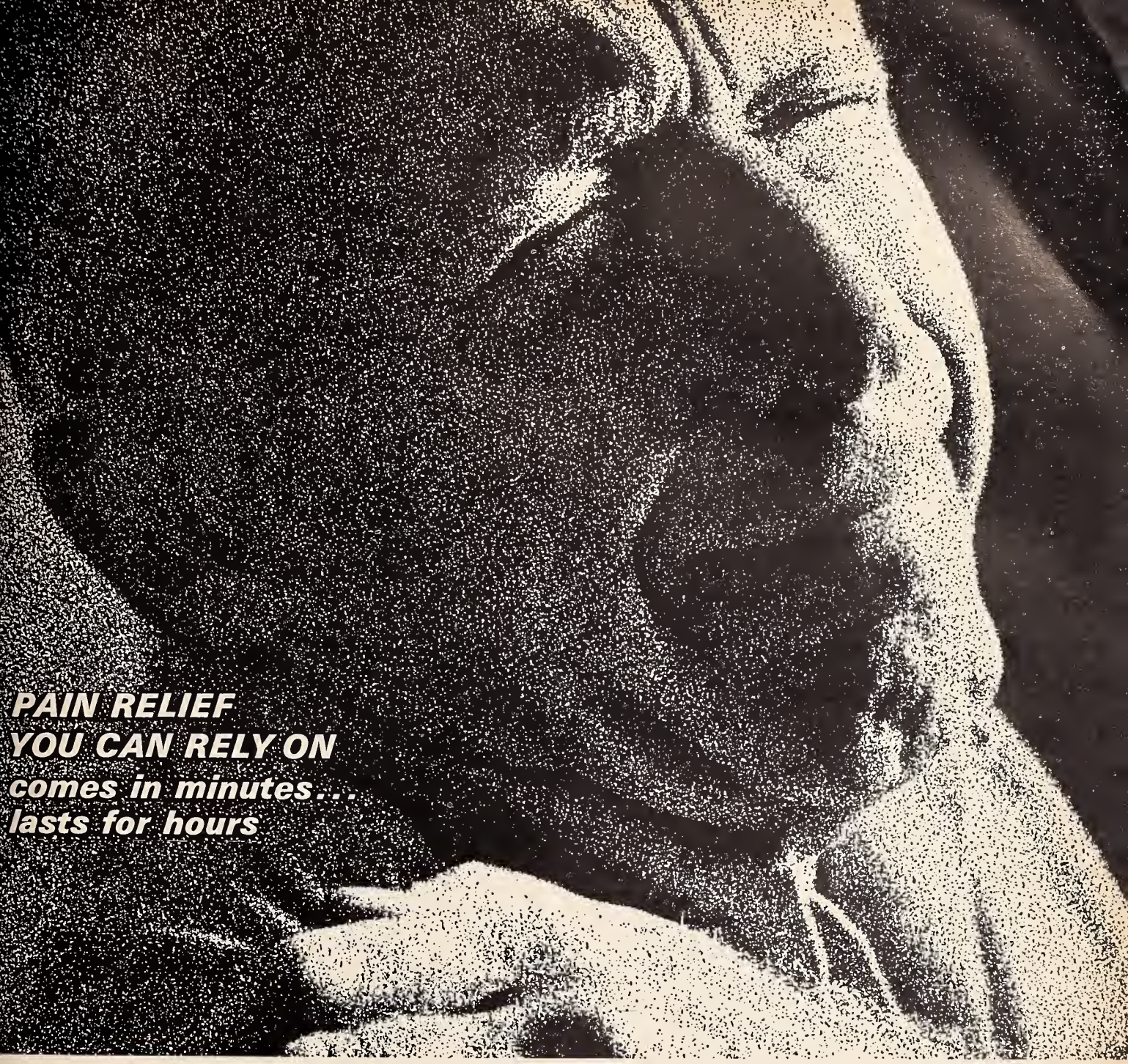
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Dr. Boldrey

Palliative Management Of Patients With Malignant Neoplasms

by
Edwin Boldrey, M.D.

Science, Surgery & Sympathy

THE DAY when the management of pain per se is the major consideration in a patient with malignant neoplasia is a sorry one indeed. It is then tacitly assumed that all avenues of therapy have been explored, that nothing further can be gained by any procedure aimed at the disease itself, and that nothing remains but to interrupt the paths for transmission of painful stimuli to consciousness or, failing this, to create a condition wherein the wretched unfortunate's continuing complaints to those about him will be tempered or hushed, affording relief to them (if not the sufferer). At best, a sad condition exists then, in which modern medicine can take little pride. The salvage is small when the neurosurgeon is called into the picture and decisions based on merging shades of gray rather than on sharp contrasts of black and white must generally be made. However, a human problem exists and must be dealt with.

The first point to be established is the degree of pain existing. Is it intolerable?

Pain is an opinion, and in medicine we are called on to see people complaining of it for a variety of reasons. There are, unfortunately, no tests for pain — it is purely subjective. It may be acute, or chronic, and a variety of adjectives as well as pantomime are employed to convey the nature of the condition to the observer. These must be interpreted. In the case of pain in malignant disease, the reality of the process is seldom questioned; not so, however, the ability of the patient to tolerate the discomfort. Pain may be intolerable because of its severity or because, though moderate in degree, it is present day after day — endurable if of known time limit, but exhausting when no end seems in sight. And of course, the former may merge into the latter as well. There are individual variations in stoicism too. We should not take advantage of the person who tries hard to be "a good patient." Nor can we abandon as hysterical the over-demonstrative and the steady complainer. "She doesn't look like she hurts" can be a horribly misleading evaluation — certainly unscientific. It must be terrible to hurt badly and have no one believe you. The patient with cancer though, usually is believed.

Is the cancer the cause of the pain?

In this analysis, now, one must pause to determine with certainty that the cancer is

Presented at American College of Surgeons: Section Meeting, Phoenix, Arizona, January 21, 1963.

Professor of Neurological Surgery, University of California School of Medicine, San Francisco, California.

in fact the cause of the patient's complaint. The law of parsimony in diagnosis can be misleading. Patients with known malignancy are not immune to other pain producing processes, which may escape the physician's preoccupied attention, focused sharply on the neoplastic disorder. These patients are usually of an age when a number of other painful conditions may exist — may here coexist. Their possible presence deserves positive reflective review before proceeding with action based on an oncogenic premise.

The next item is to determine that all other avenues of palliation have been exhausted.

One would think that when destruction of nerve pathways is being contemplated, this would automatically have been quite settled. Experience has taught unfortunately that it is not always so. It is necessary to check personally with colleagues in other fields to determine whether surgery or chemotherapy or palliative radiotherapy might still have potential value in rendering as much or more relief by therapeutic approach to the offending lesion, lengthening life and sustaining hope, as well as mitigating the basic discomfort. The irrevocable destruction of normal nervous tissue must be preceded by a particularly critical review of every other reasonable method of therapy.

The fourth point is the estimate of time of survival to be anticipated.

This is a particularly difficult part of the clinical evaluation. At best, it must be an educated guess and often the education seems hardly elementary. Again, though, the degree of gray must be examined and a decision made. The obvious factors will be the character and location of the primary cancer and its metastasis; preceding evidence of speed and direction of growth; evidence of response to therapeutic maneuvers, especially in the recent past; and perhaps most of all, the intuitive estimate of the physician who has had under his continuing care the patient's problem from its inception. We in the specialties must not forget this man who is really providing the continuing medical thread throughout the patient's mortal dilemma. It is important that he have the chance to participate in this basic point in clinical evaluation.

When it has been established that the pain is in fact intolerable, that the pain is caused by the cancer, and when it is established that all therapeutic efforts have been exhausted, and when some reasonable estimate as to the prospective period of survival has been made, it is appropriate then to turn to thoughts as to available methods of management.

If the expected survival is brief — at most, a few weeks — then in most instances it is wise to prescribe adequate and increasing amounts of narcotics, avoiding the distress and rigors of superimposed surgical procedures of any sort — any of which can conceivably add to the problem (at least for the time). The choosing of this path must not be taken lightly, though, for addiction to all available narcotics occurs quickly and it is not long before two diseases exist — that producing the pain by tissue involvement, and the pain associated with the overwhelming desire for the drug.

If survival for a number of months seems to be likely, the value of pain pathway interruption can then be properly reviewed.

Let us first refresh our memory briefly of the anatomy of the pain pathways. Sensory nerve endings are deployed in various parts of the body, including the skin, the bones, tendons, and the viscera. The nerves themselves are also capable of appreciating pain, either within themselves or by means of nervi nervorum. The centripetal painful impulse, then, approaches the cord through the nerve, the cell body being in the dorsal root ganglion, and the central projections entering the cord — ascending and descending making synaptic connection with cells of the second order. The axons of these cells whose bodies lie in the dorsal column of the spinal cord pass anterolaterally to the contralateral side of the cord and ascend in the anterolateral pathway to the region of the thalamus. A more or less orderly lamination takes place in the cord, though intermingling of any representation does occur. Generally speaking the fibers carrying impulses from the sacral segment lie near the dentate ligament and near the surface, whereas the more recently arriving fibers are anteriorly placed and are deeper. This spinothalamic tract probably ends, as its name implies, in the thalamus, though the details as to the exact termination are still the subject of research. Classically, the brain cortex does not participate directly in the pain problem. Painful response

has rarely been reported as a result of cortical stimulus and then the interpretation of the patient has usually been questioned. The emotional overtones of pain, however, are a significant function of the brain cortex and it is the interruption of these overtones that has led to the procedures of tractotomy and lobotomy in the white matter of the cerebrum.

The interruption of the pain pathway in the nerve or in the nerve root has been accomplished in a number of ways. The nerve may be resected peripherally with appropriate measures being taken to prevent regrowth. More commonly, the nerve roots have been cut within the spinal canal. The advantage of the nerve resection is that it can give relief to pain of an intense character in a well localized small area, spread from which is regarded as unlikely and trauma to which, with attendant trophic lesions, can with reason be avoided. A disadvantage of peripheral nerve interruption is that regrowth does occur, that paresthesias likewise are by no means infrequent and the anesthesia may be distressingly profound. Peripheral nerve section is rarely carried out nowadays except in the cranium. Even here, the interruption is usually by block, as with alcohol and in a limited number of nerves — most commonly elements of the trigeminal.

Sensory root section has the same disadvantages as peripheral nerve section — it produces a complete anesthesia and trophic lesions may readily develop. A bedridden and incontinent patient with intolerable pain in the sacral segments may benefit by the intrathecal injection of agents such as alcohol or, more recently, phenol. These have limitations of usefulness because of the usual paralysis of motor function, including the control of bowel and bladder; other disadvantages include paresthesias which are not infrequent (particularly with alcohol), plus limited duration of pain interruption in situations when, for example, phenol has been used. Some enthusiasts state that they have been able to interrupt pain fibers while preserving sensation of touch and report having done this even in the upper lumbar and thoracic distribution. In my experience, this degree of success even in the hands of an intensely interested expert technician has been extraordinary. In most instances, when subjected to critical analysis, the method leaves something to be desired.

Root section for lesions about the face and throat has been more commonly employed with less qualified success. By approach through the posterior fossa, it is possible to interrupt the trigeminal, the glosso-pharyngeal, nervus intermedius, and even coincidentally the sensory roots in the upper cervical region, relieving pain due to malignancy in the cranium and neck. The anesthesia is better tolerated in the hemiface and hemicervical region than over the extremities, and sensory interruption may be the treatment of choice in a painful situation here which fulfills the criteria we have established.

The relief of pain by section of the anterolateral tract in the cord has the advantage of preserving most of the other sensory modalities except that for temperature appreciation. It is particularly valuable in painful processes below the diaphragm, and when the cut is at the first or second cervical segment, it has been helpful in thoracic lesions and even in those of the upper extremities. The section of the tract may be carried out at the upper thoracic level bilaterally at one procedure, one side usually being incised a segment lower than the other. Tract section at C1 and 2 level not only has the advantage of giving a higher level of analgesia but is accompanied by less morbidity from the surgery itself. However, though some have carried out single stage bilateral tract sections at C1, 2, many of us prefer to do these procedures at different times, establishing the function of the respiratory system after the first procedure before proceeding with the second. Frequently there is a weakness on the ipsilateral side after section of the anterospinal tract, particularly if the pain is in the sacral segments and it has been necessary, therefore, to crowd the horizontal plane at the level of the dentate ligament. This weakness is usually transitory, and in staged procedures it is seldom incapacitating. Transitory bladder and bowel incontinence may also occur but in staged procedures; it is seldom permanent.

A drop in blood pressure after cervical tractotomy is commonplace and may pose a problem. but return of vessel tone usually occurs within a few days, even after the second procedure.

The disadvantage that tractotomy entails a surgical exposure is generally regarded to be outweighed by the advantage of having only

painful impulses interrupted. Unfortunately, in this as in any other process that we are discussing, the results are not perfect. The relief by tractotomy of pain due to malignancy, however, is generally better than for pain of other origin.

Tractotomy of the descending root of the trigeminal has been described and is carried out in the brain stem. This particularly affects the distribution of the first division of the trigeminal and, to some degree, the second. Complete analgesia over the face has been described in some of these sections. Again, pain and temperature only are affected with touch and pressure being spared. Uniform success however is not to be anticipated, though the percentage of success is high. The disadvantage of tractotomy for facial pain is the limitation of success in relief, plus the complication of involvement of the cerebellar pathways leading to some coordinative difficulties.

Coincident with the development of stereotactic procedures for other problems, it is obvious that thought should turn to destructive lesions in the thalamus as a possible means of controlling intolerable pain. These have been carried out with some reported success in a number of instances, but with disappointment in many others and must be regarded for the present, at least, as investigative. They probably should be undertaken only in a few centers where this aspect of pain control is the subject of well formulated research.

On the past decade and a half, and still sporadically there have been those interested in leukotomy as a means of pain control. The frontothalamic path lying low and mesially in the white matter of the frontal lobe has been the particular object of study and has been interrupted by cutting, by destructive chemical agents and by physical agents such as ultrasound (Lindstrom). The possible introduction of the cyclotron with its proton beam as a lesion producer is fascinating. Also, by bringing the atom into the picture the status of pain would be elevated significantly in the academic hierarchy of research.

Unfortunately, though, leukotomy has been disappointing and most neurosurgeons are disinclined to turn to this procedure regardless of the traumatizing device.

It must be emphasized that the results in none of these procedures is uniform. Conditions have been seen in the face, for example, where every known sensory pathway including the optic nerve and the descending tract in the medulla but not the auditory nerve or the olfactory have been interrupted, yet the patient continually complains of pain. If the surgeon finds this situation intolerable to his own ego, he can of course resort to "central pain" as an explanation. This has never appealed to me, however, as a reason.

Before concluding this discussion, the third item in my subtitle — sympathy — must at least receive a word. A cancer patient with intolerable pain faces the end of the road, and he knows it. He can face it with greater equanimity if there is understanding in his family or by that rare phenomenon, a close and trusted friend. The derelict, unknown or in like vein identified only by a number (a prospect faced by us all it seems), poses more of a problem.

The physician (and I use the word in its broadest sense) as a member of the most demanding of the learned professions has a responsibility here too. Turnbull has remarked on the invaluable contribution of the family doctor in the situation like this — the care of the patient and also the decision in the best course to follow in therapy.

Many times the surgeon's needle or knife will have heartening supplementation if he, too, takes the time to sit by the bedside and, taking his patient by the hand, imparts to him a concern for him as a suffering human being rather than curious interest in a wretch identified by a nine digit number dying of a horrible disease. It is an act which bespeaks the ideal character of the physician — an ideal achieved as an individual, but seldom if ever as a part of a corporation. The time may be well spent, and not only because of the self-satisfaction it usually gives. The very effectiveness of other therapy may be enhanced and what might have been failure turned into at least a limited success.

To close with a quotation from Sigerist, "The character of a physician not only supposes natural sagacity and acquired erudition but it also implies every delicacy of sentiment, every tenderness of nature and every virtue of humanity."

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Dr. Goodwin

Status Of Some Infectious Enteric Diseases In Arizona

by

Melvin H. Goodwin, Jr., Ph.D.

Arizona has a distressingly high infant mortality, much of which is concerned with infant diarrhea. Here are some of the available statistics. Better reporting by the medical profession would make them even more significant.

ENTERIC infections are recognized as significant causes of mortality and morbidity throughout the world, especially among infants and in areas where sanitation is inadequate. Application of definitive measures to prevent these infections must be based upon precise knowledge of the etiology and epidemiology of the several specific entities that comprise the conglomeration designated by vague terms such as diarrheal diseases, viral gastroenteritis, intestinal flu, etc.

The purpose of this discussion is to characterize, as precisely as is possible on the basis of present information, trends in occurrence and etiology of the prominent infectious enteric diseases in Arizona associated with infant mortality and with morbidity among persons of all ages.

Mortality due to enteric infections

A review of national vital statistics inevitably draws attention to Arizona as one of the states with the highest rates of infant deaths attributed to diarrheal diseases.* From 1950 to 1959, the latest decade for which mortality statistics are available, Arizona ranked among the seven states with highest rates of infant deaths attributed to diarrhea. For the first five years of this period Arizona was in first or second place. Figure 1 shows the trend of infant deaths and the proportion of infants deaths attributed to diarrheal diseases in Arizona and the entire United States from 1952 through 1959. Additional data for Arizona are shown through 1962. The rate of about 28 deaths per 1,000 live births for the United States in 1952 represents a substantial reduction from about 100 deaths per 1,000 live births at the turn of the century. Since 1952, the United States rate has been relatively stable. In Arizona, however, the decline has been precipitous. A reduction of 57 percent occurred from 1953 to 1962. Data for both the entire United States and Arizona reflect impressive decreases in the proportion of infant deaths attributed to diarrheal diseases (Table 1). In 1953, the year during this period when the highest rate was reported, diarrhea was recorded as the principal cause of death for more than 18 percent of the deaths among infants in Arizona. The maximum proportion for the United States was about 5 percent. As shown by the data in Figure 1, the proportion of infant deaths attributed to diarrheal diseases is about three times greater in Arizona than in the country as a whole, although the rate of infant deaths in Arizona from all causes now compares favorably with the rate for the United States. Furthermore, the proportion of deaths attributed to diarrhea in the entire United States has declined more rapidly than the rate of total infant mortality. In Arizona, however, the decline in proportion of infant

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*In this discussion, diarrheal diseases include categories 045-048, 543, 571, 572, and 764 in the International Classification of Diseases.

Table 1

Number of infant deaths in Arizona from 1952 through 1962; rate per 1,000 live births of infant deaths and percent of infant deaths attributed to diarrheal diseases in Arizona from 1952 through 1962 and in the United States from 1952 through 1959

	Arizona			United States	
Year	Number of infant deaths	Rate of infant deaths/1,000 live births	Percent of infant deaths from diarrhea	Rate of infant deaths/1,000 live births	Percent of infant deaths from diarrhea
1952	1,081	44.1	16.7	28.4	5.2
1953	1,252	49.0	18.4	27.8	5.0
1954	1,051	39.3	16.9	26.6	4.3
1955	961	34.6	10.8	26.4	3.8
1956	959	32.4	8.6	26.0	3.3
1957	1,141	35.9	12.7	26.3	3.4
1958	1,098	33.5	8.8	27.1	3.0
1959	1,145	33.2	7.2	26.4	2.9
1960	1,165	31.8	9.3		
1961	1,169	31.2	7.9		
1962	1,072	28.4	8.9		

deaths associated with diarrhea and the rate of infant mortality are closely related. This suggests that factors which have operated selectively to reduce mortality from diarrhea in the country as a whole have not had the same effect in Arizona.

Partial explanation of the excessive rate in Arizona, as compared with the entire United States, may be found by examining the geographic and racial distribution of reported deaths. In interpreting these data the number of cases on which rates are based should be kept in mind. Awareness of the numerical magnitude of the problem should offer encouragement for remedial measures but does not minimize the significance of the high rates.

Table 2 shows, for white and nonwhite races, the number of infant deaths from all causes, the infant death rate per 1,000 live births from all causes, and rate of infant death from diarrhea in Arizona counties for the period from 1952 through 1961. These data reveal the wide variation in death rate attributed to diarrhea and indicate the relative significance of diarrhea as a cause of infant deaths among the different counties. It is apparent that the nonwhite population in Arizona contributed much of the excessive mortality that raised rates for Arizona above the national average. However, the average annual rate of deaths among white infants in the State was above the national average in most counties during this period; but the relative proportion of nonwhite to white births does not correlate directly either with rates of total infant deaths or with rates of deaths attributed to diarrhea. In assessing the possible causes of high local rates, explanations other than those related to ethnic factors must be considered, although, among the nonwhite population in several counties the rate of infant deaths from diarrhea alone is greater than the rate of infant deaths from all causes in Arizona, as well as for the country as a whole.

The fact should be kept in mind that substantial changes have occurred in rates for both the counties and the races in the last few years. Rates based on records for the 10-year period may not reflect the current situation. Consolidation of data for several years was necessary to provide a basis that would enable comparison of rates for the counties with small numbers of annual deaths. The data in Table 3 show that significant reductions occurred in rates of infant deaths among both white and nonwhite populations between 1952 and 1961, but rates for nonwhites remained significantly higher than for the white population and have declined at a slower rate. The rate of infant deaths attributed to diarrhea among the white population declined by 76 percent and that for the nonwhite population declined by 61 percent.

These data suggest the locations and populations where special emphasis should be placed to accelerate the decline of infant mortality caused by enteric infections. Apparently no specific esoteric investigations or developments are needed. In this respect, measures required for further reductions in infant deaths associated with diarrheal diseases in Arizona are in sharp contrast with requirements in many other areas of the world where diarrheal diseases are the leading causes of infant deaths. The local problem relates primarily to failure in use of available medical resources and, in a few areas, to poor accessibility of adequate facilities for treatment.

Table 2

Rate of infant deaths per 1,000 live births from all causes and from diarrhea; number of infant deathss by white and nonwhite races; and ratio of nonwhite to white births in Arizona counties from 1952 through 1961

County	Rate of infant deaths per 1,000 live births				Number of infant deaths		Ratio of nonwhite to white births
	All Causes		Diarrhea				
	White	Other	White	Other	White	Other	
Apache	34.5	71.7	1.5	16.5	68	697	4.93
Cochise	33.5	61.5	1.8	3.1	404	20	0.03
Coconino	32.6	85.5	1.8	17.3	204	429	0.80
Gila	32.2	101.5	0.7	31.8	192	166	0.27
Graham	31.9	125.6	3.2	26.9	102	56	0.14
Greenlee	28.1	112.2	1.8	20.4	96	11	0.03
Maricopa	33.0	51.2	1.9	9.0	4,315	612	0.09
Mohave	33.1	119.7	2.6	42.4	50	48	0.26
Navajo	33.4	94.8	2.9	24.6	160	689	1.52
Pima	25.2	70.0	0.8	11.7	1,412	341	0.09
Pinal	44.1	66.4	8.5	18.3	691	243	0.23
Santa Cruz	28.4	64.5	3.9	0	79	2	0.01
Yavapai	30.6	80.1	1.6	24.4	150	23	0.06
Yuma	34.5	50.9	2.1	8.6	383	71	0.13

Epidemiologic relationship of morbidity and mortality attributed to diarrhea.

Available knowledge is inadequate to indicate the extent to which death from diarrhea in Arizona can be further reduced by control or extirpation of recognized enteric pathogens such as *Shigella* and *Salmonella*. Especially in areas of low endemicity, the multiplicity of factors, such as malnutrition, concurrent extraintestinal infections, and sequelae of diarrhea that potentiate the pathogenicity of enteric organisms, may obscure the etiologic significance of the infectious agents against which control measures could be directed. Although definitive incrimination of a recognized enteric pathogen by laboratory examination can be made only in about half the cases of diarrhea of sufficient severity to warrant treatment, epidemiologic evidence and results of special studies indicate that infectious agents are associated with most cases of diarrhea in areas where recognized enteric pathogens are highly endemic.[1] For example, intensive studies in the southwest during the 1930's showed that *Shigella* was demonstrable in as much as 95 percent of cases of severe diarrhea.[2] Recent studies in the same general area suggest that *Shigella* is still the predominant enteric pathogen associated with acute diarrhea of infants.[3] In areas of lower endemicity, the role of specific enteric pathogens is more difficult to assess. It follows logically that where an appreciable problem of mortality is associated with diarrhea, the rate of morbidity will be correspondingly high. However, morbidity due to diarrhea cannot be readily appraised in terms of infant mortality in areas where rates of infant deaths are as low as the current national rate.

Application of epidemiologic techniques to analyses of available data does provide tenable indications of etiologic relations that can provide bases for development of control measures and enable clearer delineation of data needed for further reduction in both morbidity and mortality.

Table 3

Deaths reported from diarrheal diseases per 1,000 live births of white and nonwhite infants in Arizona from 1952 through 1961

Year	Rate per 1,000 live births	
	White	Nonwhite
1952	3.84	27.3
1953	4.06	36.6
1954	3.22	25.8
1955	2.16	12.6
1956	1.59	9.5
1957	2.29	17.5
1958	1.77	9.5
1959	1.17	8.9
1960	1.07	13.2
1961	0.92	10.7

Etiologic relationships suggested by seasonal distribution of specific enteric infections.

In an effort to characterize the occurrence of prominent infectious diarrhea in Arizona, a study was made of the distribution of specific diseases reported to the Arizona State Department of Health for the last 10 years of available record. These data were correlated with results from investigations that were designed to gather precise information on the etiology and epidemiology of diarrheal diseases. Some of the preliminary indications of the complementary data from these sources are described below.

Reports of mortality probably reflect closely the number and causes of deaths. Deficiencies in such statistics result from relatively infrequent

occurrences of unreported deaths and from errors of commission by attendants. Morbidity statistics, on the other hand, are subject to serious deficiencies of omission resulting from failure to record reportable illness. Nevertheless, seasonal trends in numbers of cases of diarrheal diseases reported to health departments by attending physicians parallel trends observed in closely supervised studies. Table 4 shows the number of cases of shigellosis, salmonellosis, amebiasis, and diarrhea of undetermined etiology reported in Arizona for the years 1953 through 1962. Reports of diarrhea of undetermined etiology were not requested prior to 1959.

Table 4

Number of cases of shigellosis, salmonellosis, and amebiasis reported annually in Arizona from 1953 through 1962 and number of cases of diarrhea of undetermined etiology reported from 1959 through 1962

Year	Shigellosis	Salmonellosis	Amebiasis	Diarrhea cause undetermined
1953	52		29	
1954	153	29	148	
1955	92	23	79	
1956	55	14	67	
1957	43	5	76	
1958	95	25	104	
1959	142	88	201	3,230
1960	74	82	277	3,943
1961	153	199	227	3,716
1962	245	80	183	7,426

Some idea of the extent of under-reporting is illustrated by observations made in 1958, when only 95 cases of shigellosis were reported for the entire state. During the same year, 221 laboratory-confirmed cases of shigellosis were observed in two limited research projects that involved less than 1,000 persons. Furthermore, a comparison of trends of mortality and morbidity data indicates that fewer cases involving reportable enteric pathogens were recorded in 1957 than in adjacent years but shows a peak in the number of deaths during the same year. Variations in numbers of reported cases in different years probably do not reflect a true fluctuation in the incidence of pathogens but rather indicate special investigative activities and intensity of local interest. It is obvious also that definitive identification of pathogens associated with diarrhea is indicated or performed in only a small proportion of the cases that require treatment. Thus, one may anticipate that only a small proportion of all cases of diarrhea will be reported with definitive etiology. These reports are useful, however, in establishing patterns of seasonal occurrence of the pathogens that are identified. When related to the number and

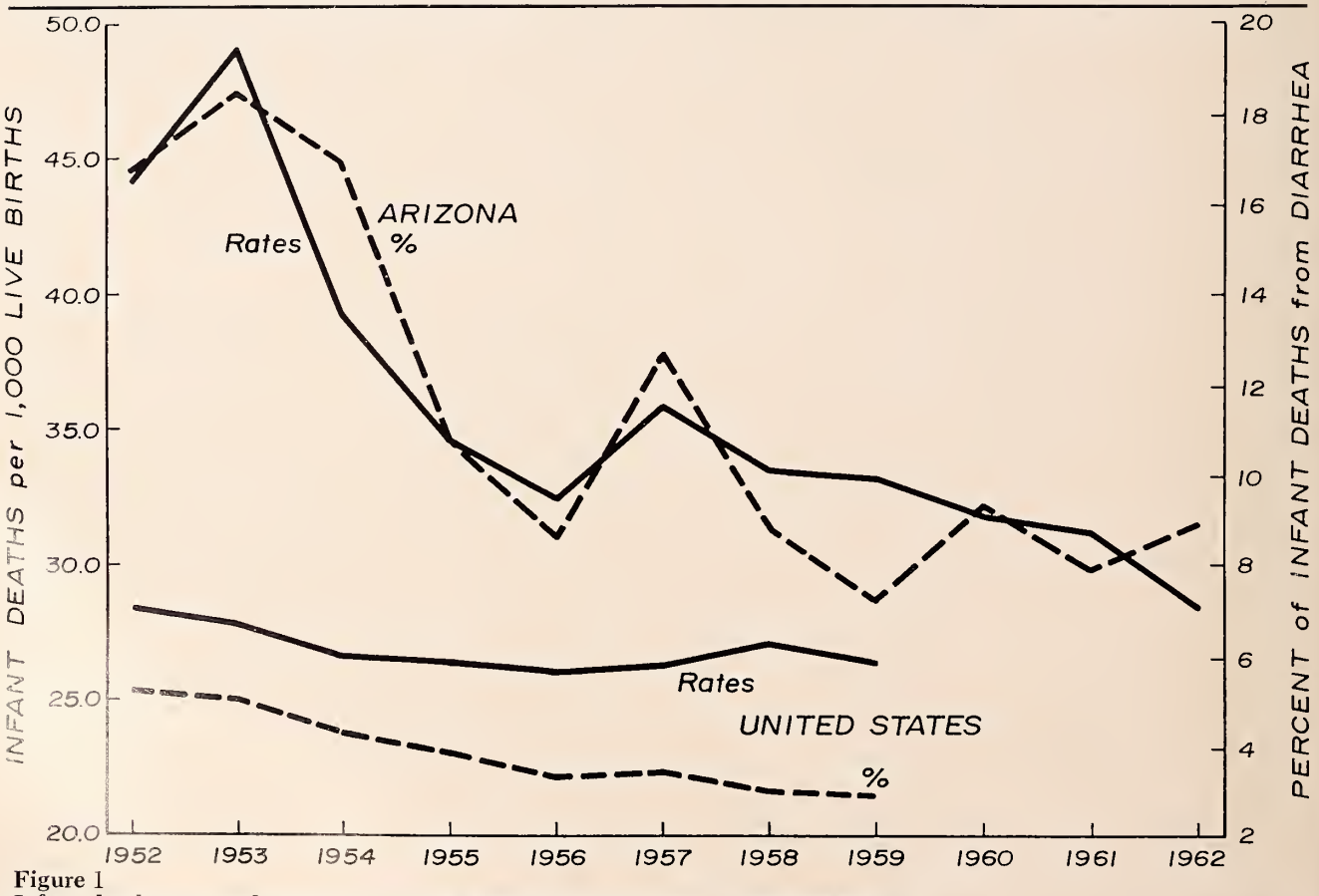


Figure 1
Infant death rates and percent of infant deaths from diarrhea, Arizona versus U.S.

distribution of cases in which the etiology is undetermined, the distribution of recognized pathogens can be used to obtain reliable indications of the relative public health significance of identifiable and occult etiologic agents.

Figure 2 shows the average monthly distribution of cases of shigellosis, salmonellosis, amebiasis, and diarrhea of undetermined etiology reported for years when data were available from 1953 through 1962. Amebiasis, which does not have a characteristic seasonal distribution, is reported fairly uniformly throughout the year. Comparison of monthly incidence of the other reported cases shows decided seasonal trends. The occurrence of most cases of diarrhea in the winter months is strikingly different from experience a quarter of a century earlier when the greatest number of cases was observed during the summer.[4] This shift in seasonal peak may be attributed to the reduction of diarrhea caused by *Shigella* and *Salmonella*. The seasonal distribution of diarrhea associated with *Shigella* and *Salmonella* shown in Figure 2 follows the pattern characteristic of the occurrence of diarrheal diseases generally 25 years ago. In Arizona, spread of these pathogens is enhanced during the summer months by the difficulties in preserving food, favorable conditions for incubation of pathogens in food, greater contact of children at play, high population of flies, and similar factors. At the present time, the monthly number of cases of diarrhea is highest when enteropathogenic strains of *Escherichia coli* and enteric viruses are most prevalent.

The changing pattern in monthly distribution of diarrhea, probably indicative of changes in relative prevalence of etiologic agents, is illustrated by the distribution of cases of diarrhea observed at three hospitals in Maricopa and Pinal Counties during 1958.[5] As shown in Figure 3, the rates for isolation of *Shigella* and *Salmonella* generally were lower in the winter and spring. Enteropathogenic strains of *Escherichia coli,* however, were more prevalent in the fall. The total number of cases observed and the proportion of cases from which bacterial pathogens were not isolated were greater during the fall months. The usual seasonal distribution of *Shigella* and of diarrhea in an area where *Shigella* is a predominant enteric pathogen is illustrated by experiences in an Indian community in Pinal County. Figure 4 shows the average

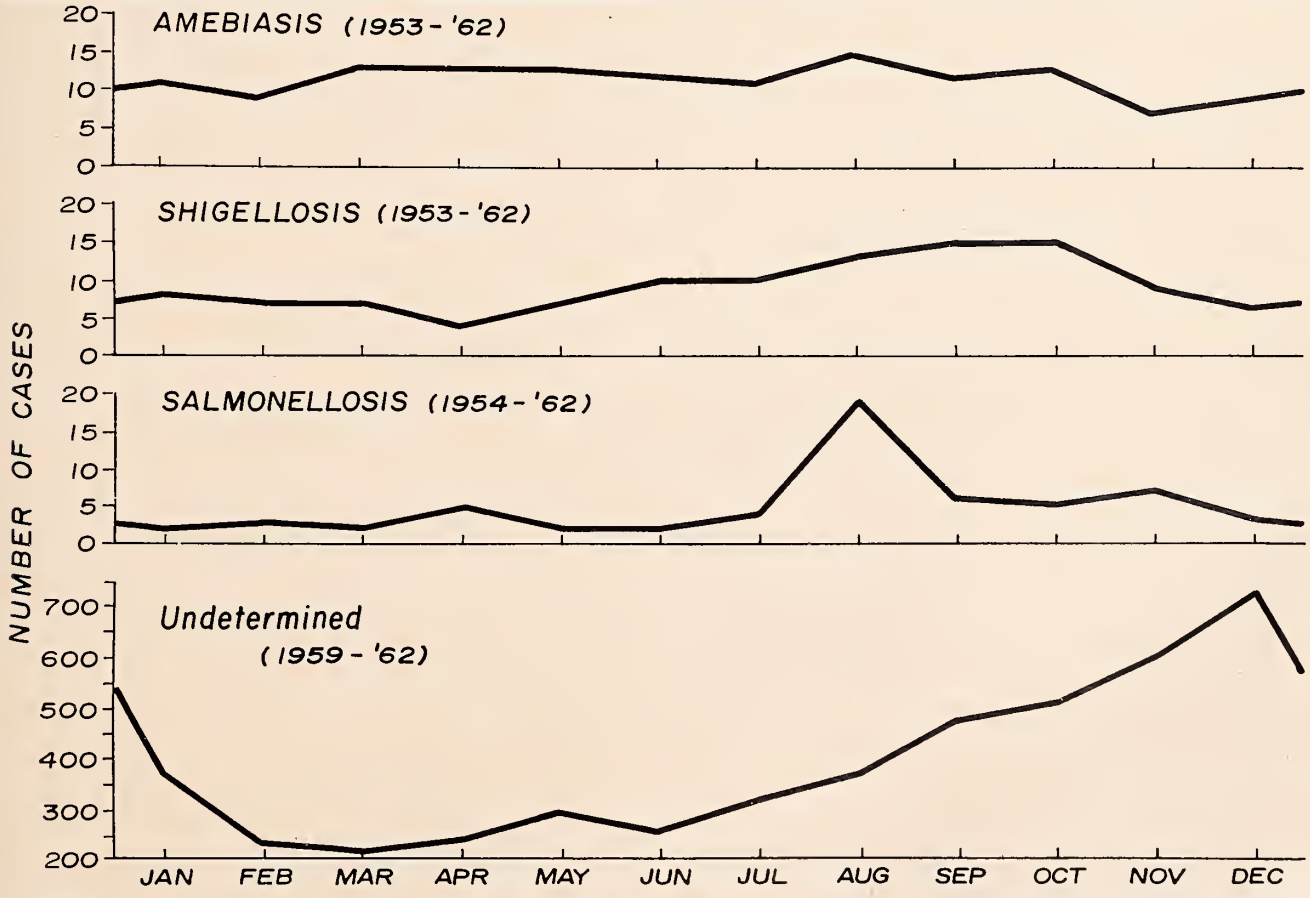


Figure 2
Average number of cases of some diarrheal diseases reported monthly in Arizona.

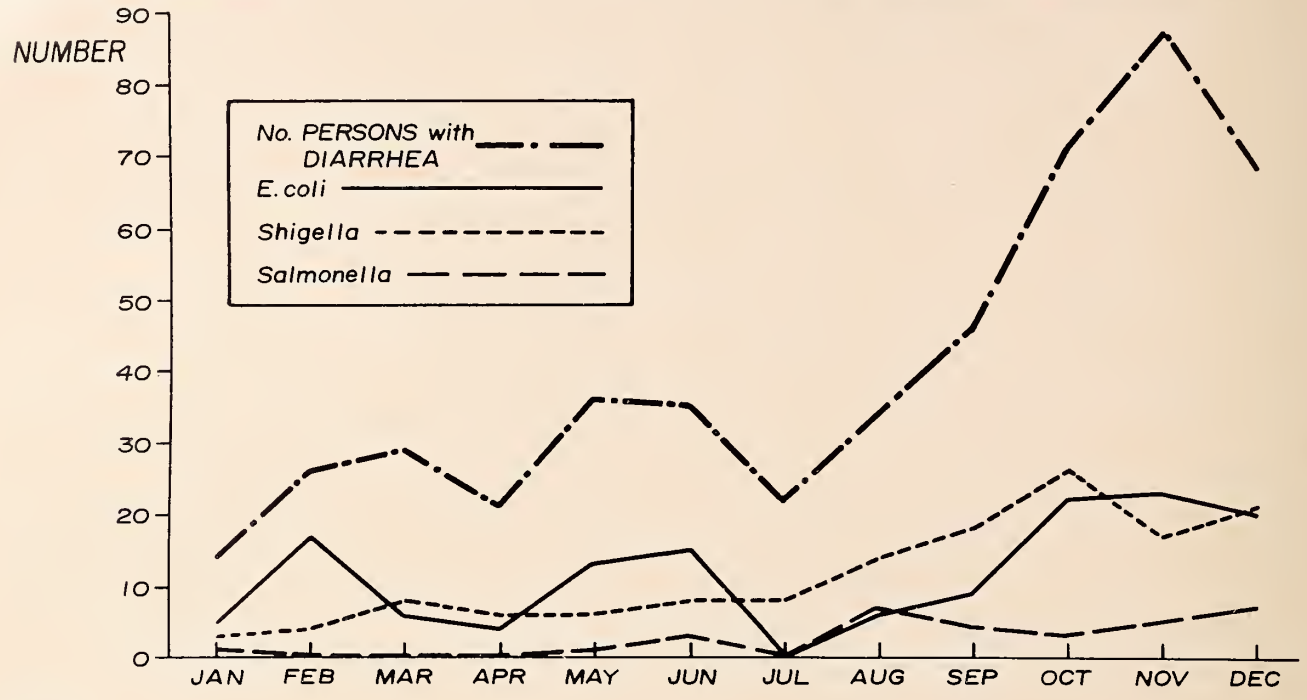


Figure 3
Number of persons observed and number of isolations of enteropathogenic ESCHERICHIA COLI, SHIGELLA, and SALMONELLA from patients with acute diarrhea at three hospitals in Maricopa or Pinal Counties, Arizona, by months during 1958.

percent of *Shigella* isolations for each month and the number of cases of diarrhea per 100 person-months experience from 1955 through 1958. In this study, specimens were collected by rectal swab each month from approximately 90 children under 5 years of age and histories of diarrhea were obtained for the total population of about 500 persons. *Shigella* usually was isolated from a greater proportion of specimens in the late summer months than at other seasons of the year. The trends of reported morbidity follow closely the rates of *Shigella* isolation except for the winter when prevalence of enteropathogenic *Escherichia coli* and viral gastroenteritis is highest.

The relative significance of different enteric pathogens among different populations is suggested by the data shown in Figure 5. These graphs show the monthly number of cases of diarrhea of undetermined etiology reported to the Arizona State Department of Health, the number of cases of diarrhea observed in a study of an Indian community in Pinal County, and the number of cases of acute diarrhea observed in three hospitals in or near Phoenix. The middle graph reflects the distribution of diarrhea among a population in an area where *Shigella* was endemic. The similarity between trends of the acute hospitalized cases and the reported cases of undetermined etiology suggests the possibility that most cases of severe diarrhea at the hospitals studied were associated with etiologic agents other than *Shigella* and *Salmonella*.

Discussion

Information from vital statistics shows that appreciable reductions have occurred in mortality from diarrheal diseases in Arizona during the past decade. However, there is an obvious need to continue and extend application of available knowledge among some ethnic groups and in certain areas of the State where residual problems persist. There is evidence that diarrheal diseases attributable to enteric pathogens such as *Shigella* have diminished in significance as a general problem but are still of appreciable local importance. The monthly distribution of deaths from diarrhea from 1952 through 1962 shows that the maximum average monthly number among Indian populations was greatest in September, coincident with the peak of *Shigella* (Figure 6). The largest monthly number of deaths from diarrhea among white infants was recorded for December.

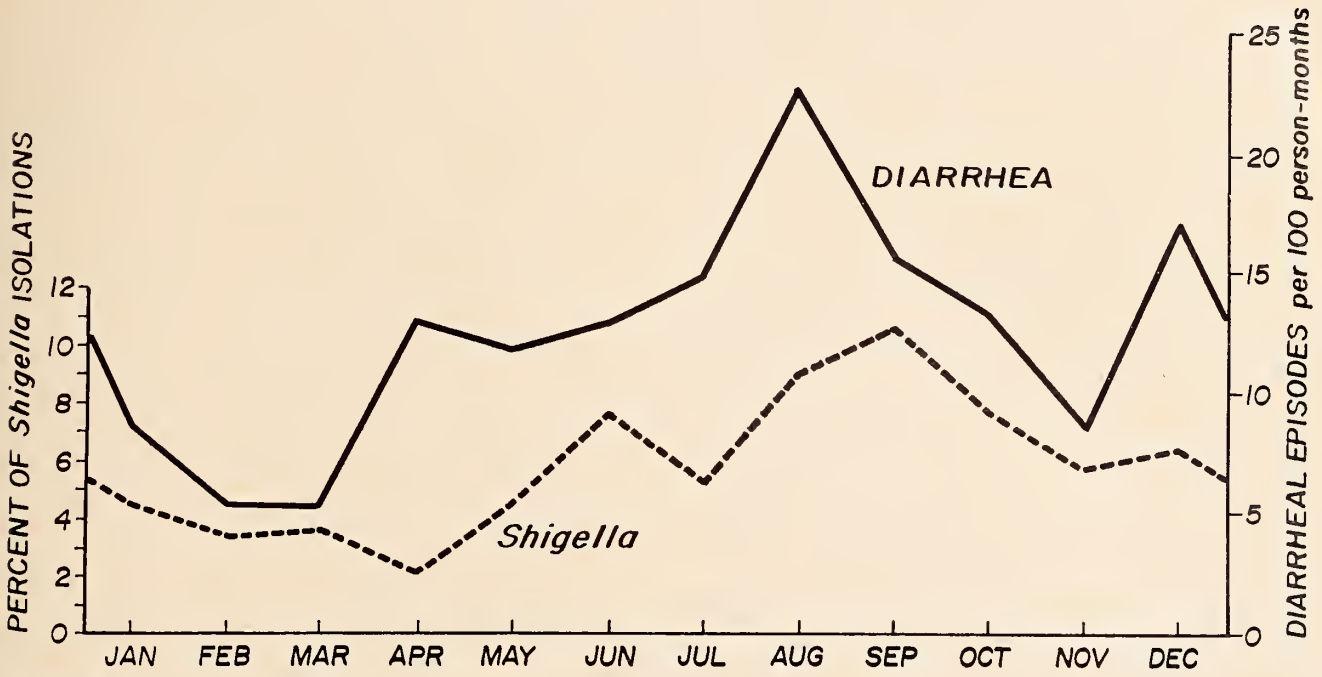


Figure 4
Average percent of SHIGELLA isolations and average number of diarrheal episodes reported per 100 person-months experience among approximately 90 children under 5 years of age; Sacaton, Arizona, 1955 to 1958.

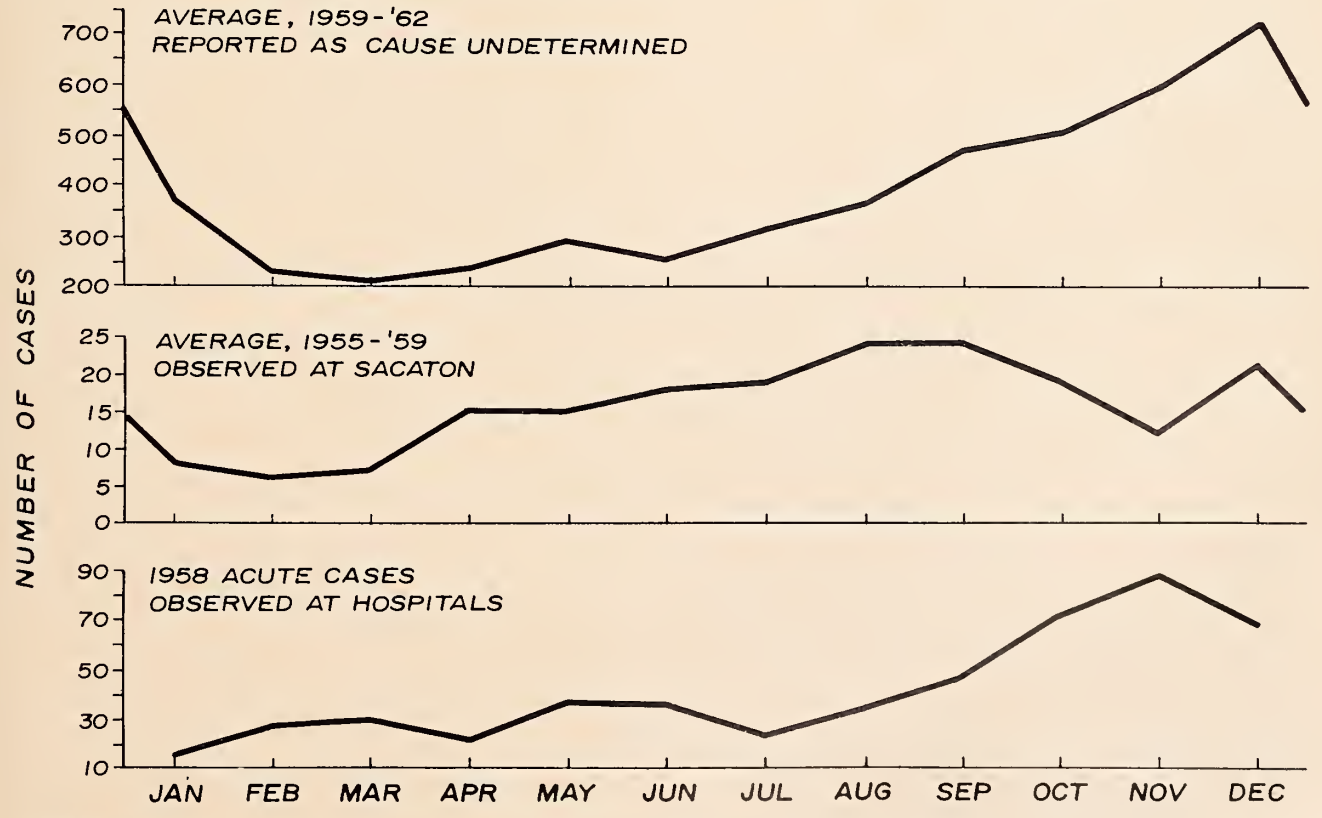


Figure 5
Average number of cases of some diarrheal diseases reported monthly in Arizona.

Both reports of vital statistics and data from special investigations indicate the need to re-examine the precise role of specific enteric organisms associated with both morbidity and mortality.

Evidence now accumulating suggests the importance of the enteropathogenic strains of *Escherichia coli* in outbreaks and in sporadic cases of diarrhea. While the significance of these organisms has been recognized in institutional epidemics, their etiologic role in sporadic cases has not been well established. The significance of the pathogenic *Escherichia coli* probably has been obscured in areas where *Shigella* has been highly endemic.

Precise data are not available on the relative importance of *Salmonella* in Arizona but experience from investigation of frequent outbreaks suggests that modern methods of processing and marketing food for man and domestic animals enhance the persistence of endemic salmonellosis and is creating new problems in the suppression of types that are newly introduced.

The most widespread and probably the most important problem of morbidity from enteric infections is the precise assessment of the identity and epidemiologic characteristics of suspected viral agents allegedly responsible for gastroenteritis. Various studies have established the significance of viruses in both sporadic cases and outbreaks that are not associated with recognized bacterial pathogens or parasites.[6, 7] The seasonal distribution of cases indicates that most episodes of diarrhea, and an undetermined proportion of deaths, occur at the same time that "intestinal flu" or "the virus that's going around" are most prevalent.

The current relative importance of enteroviruses and enteropathogenic *Escherichia coli*, and possibly unidentified agents, in diarrhea of infants is obscure. Much additional work is needed to characterize viral gastroenteritis and to

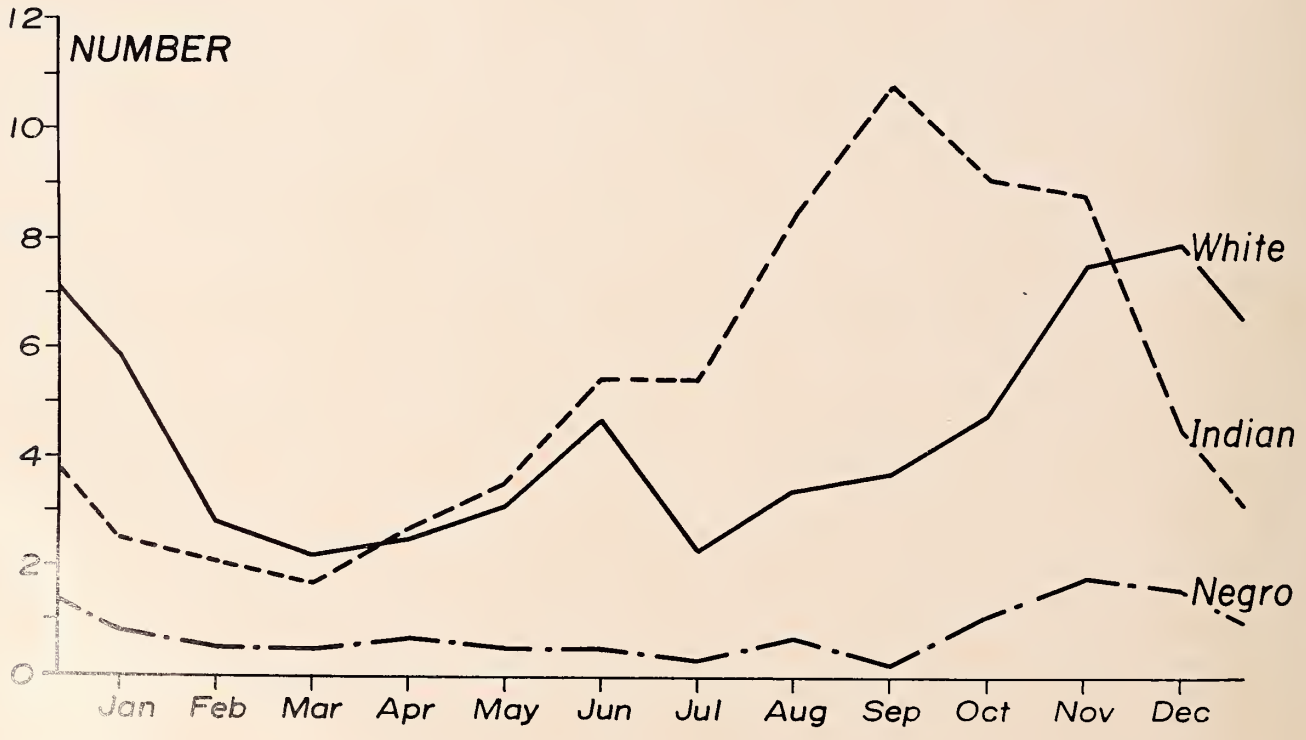


Figure 6
Average monthly number of infant deaths attributed to diarrhea among White, Indian, and Negro Races in Arizona for 1952 through 1962.

provide bases for development of control measures. In one preliminary study, cytopathogenic agents were isolated from about 60 percent of sporadic cases of severe diarrhea.[3] Approximately 35 percent of these isolates could not be identified as known viruses. No consistent causal association between any of the viruses and illnesses was apparent. Determining the significance of specific enteric viruses in sporadic cases of diarrhea is a difficult and lengthy task. Experiences to date suggest that epidemiologic approaches offer the best opportunity to obtain the data needed as a basis for further work. One productive course is the study of outbreaks in which searches for an agent common to a significant proportion of episodes may be made among multiple cases related closely in time and place. Association of suspected pathogens with ill persons at a rate higher than among the same population without indications of the illness under study provides substantial evidence of etiologic relationship. Search then can be made for specific suspected etiologic agents in other outbreaks and in sporadic cases.

At the present state of knowledge, attempts must be made to identify all of the viral agents isolated from cases of viral gastroenteritis. A large number of agents are inevitably recovered because of the wide distribution of enteric viruses and the broad spectrum of susceptibility of the systems used for primary isolation of viruses. Since most of the isolates are casual, nonpathogenic associates, the formidable task of identifying all viruses and characterizing the undescribed ones is not feasible. The search for specific agents, for example determination of the presence or absence of poliovirus, is a practical routine procedure. By establishing the association of the same agent with multiple cases of illness, one then has a specific object of search.

THE present problem of determining etiologic significance of the enteric viruses is apparent when contrasted with the well-developed laboratory procedures and identification scheme used for the enteric bacteria. In the latter case, highly selective media which inhibit the growth of most enteric bacteria are used for primary isolation. Definitive morphologic criteria, biochemical tests, and serologic typing have been worked out to enable precise screening for specific bacteria at each stage in the process of isolation and identification. Until such selective searches can be made for viruses, specific laboratory procedures, therapy, and preventive measures can be developed only on empirical bases.

TWO OTHER obvious unmet needs for suppression of infectious diarrhea should be mentioned. The first concerns determination of the etiologic significance of enteric organisms in sporadic infections. The association of a known enteric pathogen with the clinical sign of diarrhea does not necessarily confirm a causal relationship. Definitive criteria are needed to enable differentiation of infectious from noninfectious diarrhea, which will permit corroboration of the pathogenic role of specific etiologic agents by objective clinical or laboratory procedures.

The second need can be met easily with collaboration of the medical community of this State. It is obvious from the foregoing discussion that the epidemiologist concerned with application of control measures, as well as the researcher, relies heavily on reports of both morbidity and mortality made to health departments. These data provide bases for delineation and localization of problem areas, given tenable indications of the relative significance of known pathogens, and disclose where etiology is obscure. Analyses of data from regular, accurate reporting provide guides and evaluations of accomplishment for the practitioner as well as the community.

Acknowledgment

Grateful acknowledgment is made for data used in this report. Dr. Lloyd Farner, former Commissioner of Health for Arizona, and members of his staff: Dr. Philip Hotchkiss, Mr. Melvin Wise, and Mr. Charles Green, kindly provided morbidity and mortality data for Arizona. Dr. Lynn J. Lull, Phoenix Area Office, Division of Indian Health, U.S. Public Health Service, made available extensive data compiled under his direction.

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Dr. Kravetz

Disease Distribution In Southwestern American Indians: Analysis of 211 Autopsies

by
Robert E. Kravetz, M.D.

This article reflects the current state of health in the Southwestern Reservation Indians. It demonstrates the need for further improvement in sanitary measures and health education in these areas.

IN early 1955, the Indian Health Program was transferred to the U.S. Public Health Service. Most recent estimates of the number of beneficiaries cared for by the program are 380,000 "Native Americans" of which 43,000 are Alaska natives.[1] A number of clinical studies pertaining to various aspects of Indian Health have appeared, but only two studies are based on autopsy material.[2,3] The findings in 211 Southwestern American Indians autopsied between 1955 and 1960 at the U. S. Public Health Service Indian Hospital, Phoenix, Arizona are reported here. Periodic analysis of future autopsies is anticipated and will be compared with this study to see if improved medical care and removal of cultural barriers are reflected by changing disease patterns.

Material and Methods

The U. S. Public Health Service Indian Hospital, Phoenix, Arizona is the referral center for a population estimated at 45,564 in 1960[4] with 82% of the patients from Arizona. Ten reservation hospitals, six outlying health centers, and 25 health stations located in Arizona, Nevada, Utah and California constitute the referring facilities (Figure 1). A number of Indians who live on reservations adjoining metropolitan Phoenix, transient Indians, and a rare non-Indian emergency patient make up the remainder of the patient load. The majority of patients are Pima, Apache, Papago, Navajo, Supai, Walapai, Yavapai, Maricopa and Mohave Indians; all are southwestern tribes.

Between January 1, 1955 and December 31, 1960 there were 284 deaths at the hospital; 182 patients were autopsied (63.7%). An additional 29 patients treated at out-lying hospitals were sent here for autopsy — all were Indian. It is these 211 patients which constitute this study.

Complete pathological examination was performed on each patient. The cause of death as defined here refers to the disease or injury that initiated the train of events leading to death. This is the definition outlined in the International Classification of Diseases.[5] In a rare case, the terminal event was of greater significance and this was listed as the cause of death.

Results

Specific diseases have been grouped according to the "Classification" except for the cardiovascular classification; it includes all vascular lesions of the heart, central nervous system and kidneys. The infectious disease category groups all deaths due to infections together and not by organ systems. The findings are listed in tabular

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form by age groups, but specific age and sex are mentioned in the discussion when indicated.

Autopsy Percentages

The percent of cases autopsied each year at the Phoenix hospital for the years 1955-1960 (182 patients) are listed in figure 2. Included for comparative purposes is the rate for 1961 (88%). The six-year average is 63.7%; excluding 1955, the first year that the Public Health Service took over the program, the five year average is 70%. Autopsy rates for the out-lying reservation hospitals which referred the remaining 29 patients are not available.

Sex and Age

There are 112 female and 99 male patients with 129 adult and 82 pediatric cases. Patients 15 years or older are classified as adults. Eighty of the 82 pediatric cases are five and 74 (89%) are two or younger (Figure 3). The high infant mortality rate is striking.

Cause of Death

The number of patients, according to age groups, are listed in table 1 under the following categories: (1) infectious diseases (2(cardiovascular (3) gastrointestinal (4) malignant neoplasms (5) accidental (6) respiratory (7) neonatal (8) congenital (9) genitourinary (10) hematological (11) pregnancy and (12) other.

A COMPARISON of morbidity and mortality statistics in Indians and all other U.S. races reveals some striking differences. The Indian death rate is extremely high in infants as compared to all other races (Figure 4). This precent study also confirms the high infant mortality rate with 59 (28%) of the deaths in the entire group in patients under one year of age and 80 (38%) in children five years or younger. Most of these deaths were due to gastroenteric diseases, respiratory illnesses, and other infectious diseases. A poor health environment, inadequate sanitation, unsafe water, crowded living conditions, limited facilities for practicing modern hygiene, etc., is felt to be the significant contributing factor. This high infant mortality rate partially explains the younger average age of death for Indians. In 1959, 62.3 was the average age at death for all races but for Indians in the 24 Federal Reservation States, it was 41.8 years; the median age for all races was 30 years compared to 20 years for Indians[1] (Table 2). Because of the lower median age, illnesses found in "older" age groups, in general, are present but less frequently among Indians.

Infections

The leading cause of death in this study was from infectious diseases (39%). Forty (49%) of the 82 pediatric patients and 42 (31%) of the 129 adult patients were in this category. Bacterial pneumonia, diarrhea, and tuberculosis (miliary and pulmonary) were the three leading causes of death due to infections and accounted for 55% of the patients in this group. Slightly more than one-half of the pneumonias were in infants under two and all of the deaths due to dairrhea were in this group with the majority occurring in infants one year or younger (Table 1). Tuberculosis accounted for 11 deaths.

Coccidiomycosis ("Valley Fever") is endemic in the Lower Sonora Life Zone of which Arizona is a part. The great majority of persons contracting this disease have an inapparent or mild clinical infection. Less than one percent of patients develop the disseminated form of disease and they are usually in the very young or elderly age group as in the cases noted here (Table 1).[6] Since the availability of Amphotericin B, this disease is now treatable.

Amebiasis is not uncommon, especially on certain reservations, but it is anticipated that the incidence will decline with improved sanitary facilities. All deaths occurred in the early years of this study because the diagnosis was not suspected. Due to the higher index of suspicion in recent years in patients presenting with diarrhea or vague gastrointestinal complaints, the mortality rate has declined significantly,.

INFECTIOUS hepatitis also continues to be a serious health problem with sporadic epidemics reported each year from the various reservations. Five deaths were due to hepatitis, and it was noted in six other patients as an incidental finding.

Another eommon infection is pyelonephritis; it was noted in 21 patients and was the direct cause of death in five of them — all died in uremia. It was significantly more common in the female population. A high pregnancy rate, frequency of enteric infections, diminished water intake, and the high incidence of diabetes mellitus[7] may be some of the etiological factors responsible.

The remaining 14 deaths were due to a variety of infections (Table 1). In 1961, deaths due to infections were reduced to one-fifth of the total number for the Phoenix Area tribes and reflects the great strides that are being made here.[8]

Table 1.—Causes of Death by Age Groups in 211 Southwestern American Indians

Cause of Death	0-1	1-5	5-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	Total
Infectious Diseases												82
Bronchopneumonia	5	5		1	1	1	1	3		1	1	19
Diarrhea	12	3										15
Tuberculosis (pulmonary)			1			2	1	2	1			7
Coccidiomycosis		2						1	1	1		5
Amebiasis					1		2	2				5
Pyelonephritis		1			1	1	2					5
Hepatitis	2			1		1		1				5
Tuberculosis (miliary)		1		1	1			1				4
Meningitis	1	1		1								3
Septicemia	2											2
Aspergillosis							1					1
Varicella pneumonia	1											1
Measles pneumonia	1											1
Pericarditis (strep.)		1										1
Cavernous sinus thrombosis						1						1
Encephalitis	1											1
Liver abcess										1		1
Emphyema gall bladder										1		1
Sinusitis (acute)									1			1
Endocarditis (subacute)								1				1
Endocarditis (acute)										1		1
Pelvic abcess									1			1
Cardiovascular												22
Rheumatic heart disease	1			1		3	1		1	1		8
Nephrosclerosis							2	1	1			4
Myocardial infarction							2	1				3
Cardiac arrest						1	2					3
Myocarditis							1					1
Pericarditis								1				1
Cerebral hemorrhage								1				1
Pulmonary edema (acute)								1				1
Gastrointestinal												22
Laennec's cirrhosis					1	2	4	1				8
Biliary cirrhosis	1							2	1	1		5
Cholecystitis								1	1	1		3
Ruptured appendix							1	1		1		3
Common duct stone									1	1		2
Sprue		1										1
Neoplasms							1	8	5	4	2	20
Accidents												14
Subdural hematoma	2					1	1					4
Burns							1		1			2
Skull fracture	1											1
Cerebral hemorrhage	1											1
Lacerated mesentery		1										1
Severed carotids									1			1
Malnutrition	1											1
Salicylism	1											1
Aspirated bean		1										1
Abdominal hematoma				1								1
Respiratory												14
Atelectasis	5							1				6
Interstitial pneumonia	3		1									4
Cor pulmonale								1			1	2
Pulmonary emboli					1							1
Tracheitis (nectotizing)								1				1
Neonatal												12
Stillborn	5											5
Premature	4											4
Hyaline membrane	3											3
Congenital												9
Cardiac	5	1										6
Neurological	2	1										3
Genitourinary												6
Glomerulonephritis				2		1						3
Hydronephrosis							2	1				3
Hematological												3
Multiple myeloma									1			1
Granulocytic leukemia (A)*				1								1
Granulocytic leukemia (C)*										1		1
Pregnancy												3
Eclampsia					1							1
Ruptured ectopic					1							1
Pituitary necrosis					1							1
Other												4
Penicillin anaphylaxis				1								1
Pentothal anaphylaxis								1				1
Adrenal hemorrhage								1				1
Unexplained	1											1

*(A) Acute *(C) chronic

Table 2.—Average Age at Death, Indians and All Races, 1959[1]

	Indians 24 Fed. Res. States	All Races
Average age at death	41.8 years	62.3 years
Percent of deaths before 1 year of age	21%	6.8%
Average age at death (those surviving 1 year)	52.9 years	66.8 years
Percent of deaths before 5 years of age	25.9%	7.8%
Average age at death (those surviving 5 years)	56.1 years	67.5 years

Cardiovascular

Twenty-two deaths are in this group. Rheumatic heart disease was most common and present in eight patients. The mitral valve alone was involved in four patients, the aortic valve alone in two patients and combined aortic and mitral valve disease in the remaining two. Despite the arid climate present here, acute rheumatic fever is a frequent cause for admission to the hospital.

Acute myocardial infarction was noted in three patients and old healed infarction in four others. There were six males and one female affected. Clinically this is not a significant entity in this population. During the past eight years, only 32 cases of myocardial infarction due to coronary atherosclerosis have been documented at this hospital. With rare exception, the patients have had associated diabetes mellitus or essential hypertension.[7]

Nephrosclerosis associated with intercapillary glomerulosclerosis was the cause of death in four patients; all had diabetes mellitus and all died in uremia. The three cases of cardiac arrest all occurred in females who were having surgery for cholecystitis at the time. The remaining deaths in this group were due to a variety of causes (Table 1).

Gastrointestinal

Laennecs cirrhosis was a significant finding and responsible for eight deaths. Three patients succumbed to bleeding esophageal varices, three to hepatic coma, and one each to complicating tuberculosis and hepatitis. Seventeen other patients had Laennec's cirrhosis and 14 fatty metamorphosis of the liver as an incidental finding. A history of excessive alcohol ingestion was present in all cases of cirrhosis. In the year 1961-1962, there were 15 deaths due to Laennec's cirrhosis; they accounted for 25% of the total adult deaths during this period. The increasing problem of nutritional liver disease will be discussed in a separate report.[9]

Five deaths in this group were due to biliary cirrhosis. Acute cholecystitis was responsible for three deaths and common duct obstruction associated with cholecystitis for two others. Three elderly individuals succumbed to a perforated appendix with peritonitis as treatment was sought too late.

The unusually high incidence of biliary tract disease which so aptly has been called "the Southwestern American Indian's burden" has been previously noted[10] and also confirmed in the present study. Sixty-three (54%) of the 117 patients 21 years or older were noted to have some form of biliary tract disease. There were 19 (30%) males and 44 (70%) females.

Figure 5 lists the various types of biliary tract disease found in this group according to sex. Malignant disease was present in 21% and was the commonest type of malignancy noted in this study. The etiology of this unusually high incidence of biliary tract disease in this population is currently being studied.[11] Some of the contributory factors are excess obesity, frequent child bearing, increased frequency of enteric infections, and a high incidence of diabetes mellitus. tus.

Neoplasms

A total of 25 malignant neoplasms were found and was the cause of death in 20 patients (Table 3). As anticipated, the great majority occurred in the older age group; only one patient was younger than 51 years. Malignancies of the biliary tract accounted for 13 of this total number, but four of them were incidental findings. A wide variety of other types of malignancies were noted. The absence of bronchogenic carcinoma in this population is apparent

Table 3.Malignant Neoplasms Found at Autopsy in 211 Southwestern American Indians

TYPE	41-50	51-60	61-70	71-80	81-90	TOTAL
Gall bladder		3a	1	3a		7
Ampulla of Vater		1a	2	1a		4
Bile duct		1	1			2
Kidney				1	1	2
Breast		1		1		2
Prostate				1a	1	2
Uteras	1	1				2
Cecum		1				1
Thyroid		1				1
Stomach			1			1
Sarcoma recticulum cell)		1				1
TOTAL	1	10	5	7	2	25

[a]—One case in this category an incidental finding at autopsy and not cause of death.

and this has been previously reported in a study from this hospital.[12]

The types of malignancies listed here may be misleading as only autopsied cases are reported. A more accurate picture of the types of malignancies found in southwestern American Indians can be obtained from table 4.[10] This represents a total of 155 malignancies noted at this hospital between 1954-1960 from biopsy and post-mortem material.

Table 4.—Distribution of 155 Cases of Malignancy Discovered Among Southwestern American Indians, 1954-1961[10]

Site	Cases, No.
Biliary system	
Gallbladder	10
Bile ducts	9
Total	19
Stomach	19
Cerviz	17
Prostate	10
Skin	9
Pancreas	7
Breast	7
Ovary	6
Kidney	6
Colon	5
Leukemia	5
Endometrium	5
Thyroid	4
Lung	0
Miscellaneous	36
Total	155

Accidents

Life on the reservation is filled with many hazards not ordinarily encountered in the general population. Constant exposure to a rugged uninviting environment in which even simple daily tasks are difficult and primitive living conditions, which fortunately are improving daily, can predispose to frequent accidents. They were more common in young children; eight of the 13 patients in this group were two years or younger (Table 1). A wide variety of causes were noted but the most frequent was due to head trauma.

Respiratory

Fourteen deaths were ascribed to respiratory diseases excluding bacterial pneumonia. Five cases of atelectasis and three of interstitial pneumonia occurred in infants. Two deaths from cor-pulmonale were noted in patients with pulmonary fibrosis and emphysema. One unusual case of atelectasis occurred in a female patient with a long standing umbilical hernia which when reduced caused marked bilateral atelectasis and respiratory collapse.

Four infants were born prematurely and died shortly after birth. There were five stillborn infants. Hyaline membrane disease was diagnosed in three other patients who died in the neonatal period. Nine deaths were due to congenital defects; six were cardiac abnormalities and three were neurological. A variety of defects were noted.

Genitourinary

Three deaths were due to glomerulonephritis (chronic) in young adults. Hydronephrosis was responsible for three other deaths as a result of (1) benign prostatic hypertrophy (2) urethral strieture and (3) unexplained. All patients died in uremia.

Hemotological

There were three deaths due to blood dyscrasias. A 17 year old female died of acute granulocytic leukemia, a 75 year old male of chronic granulocytic leukemia, and a 65 year old female from multiple myeloma. The number of patients with blood dyscarsias seen here each year, for this size population, is what one might expect in the general population.

Pregnancy

With increasing acceptance of modern medical care, more babies are born in the hospital each year. However, neither prenatal care nor hospital deliveries have reached optimal levels, and frequently when medical attention is sought, it is quite late. It is not surprising, therefore, that a small number of deaths are due to complications of pregnancy. In this study, there was one death each due to eclampsia, rupture of an ectopic pregnancy, and post-partum hemorrhage resulting in pituitary necrosis.

Other

There was one death each from anaphylactic reactions to intramuscular penicillin and intravenous sodium pentothal. One death was due to unexplained adrenal hemorrhage and one totally unexplained death was noted.

The causes of death in 211 southwestern American Indians autopsied between 1955 and 1960 are presented and briefly analysed in an effort to construct a pattern of diseases in this select population. Increasing acceptance of modern medical care is expected to alter this pattern.

An appallingly high infant death rate was found with 28% of the deaths in patients under one year and a younger average age at death for



Figure 1: "Phoenix Area": Location of facilities in four states which refer patients to the Phoenix Indian Hospital.

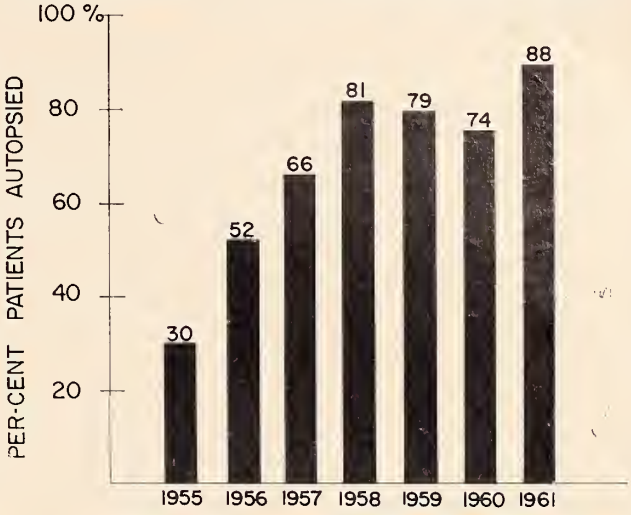


Figure 2: Autopsy percentage for the years 1955-1961 at the Phoenix Indian Hospital.

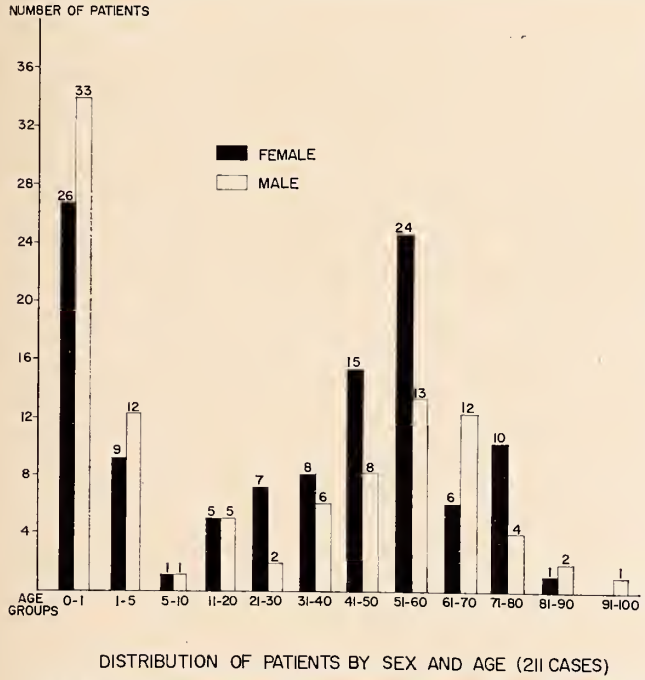


Figure 3: Distribution by age group and sex of 211 patients autopsied at the Phoenix Indian Hospital 1955-1960.

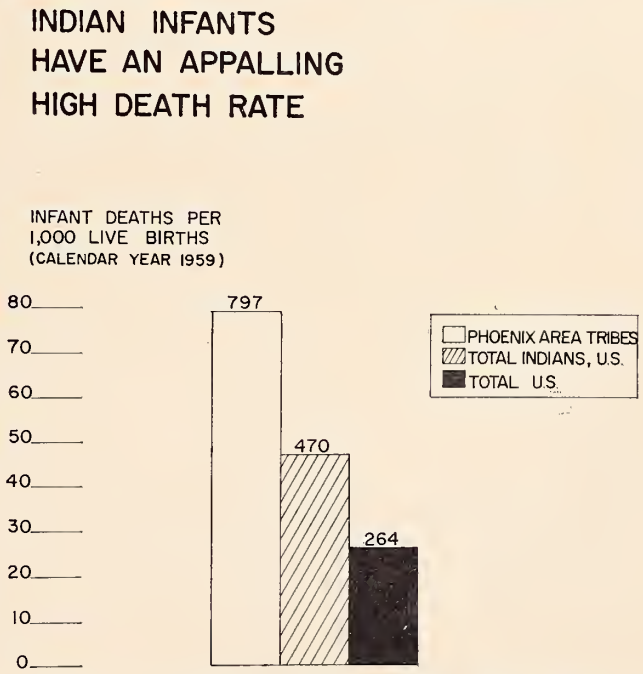


Figure 4: Comparison of the infant death rate, expressed as the number of children who die during the first year of life for each 1000 live births, in the Phoenix Area tribes, all U.S. tribes, and the total U.S. for the year 1959.[8]

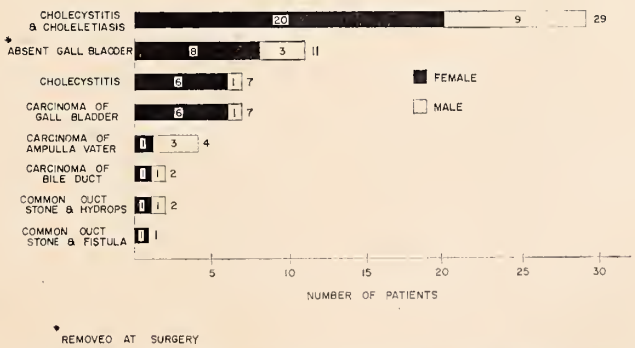


Figure 5: Distribution of 63 patients with biliary tract disease by age and type of disease present. Autopsied at Phoenix Indian Hospital 1955-1960.

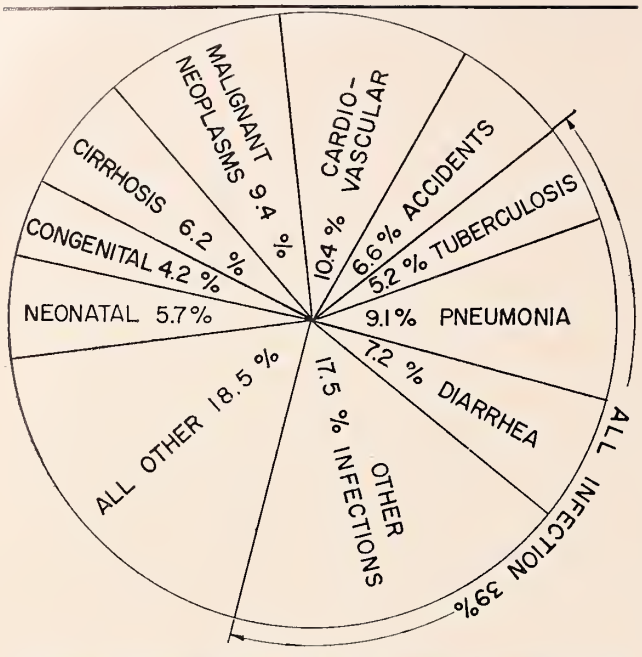


Figure 6: Major distribution of causes of death in 211 patients autopsied at the Phoenix Indian Hospital 1955-1960.

AGE GROUPS (NO. EACH GROUP)	(1)	(2)	(3)	OTHER
0 - 1 (59)	DIARRHEA INFECTION 12 + 13 = 25	NEONATAL 12	CONGENITAL 7	15
1 - 5 (21)	INFECTION 14	ACCIDENTS 4	CONGENITAL 2	1
5 - 10 (2)	INFECTION 2	0	0	0
11 - 20 (10)	INFECTION 4	GLOMERULO-NEPHRITIS 2	0	4
21 - 30 (9)	INFECTION 4	PREGNANCY 3	0	2
31 - 40 (14)	INFECTION 6	RHEUMATIC HEART DISEASE 3	CIRRHOSIS 2	3
41 - 50 (23)	CARDIO-VASCULAR 8	INFECTION 7	CIRRHOSIS 4	4
51 - 60 (37)	INFECTION 12	CANCER 8	CARDIO-VASCULAR 5	12
61 - 70 (18)	CANCER 5	INFECTION 4	CARDIO-VASCULAR 2	7
71 - 80 (14)	INFECTION 5	CANCER- 4	0	6
81 - 90 (3)	CANCER 2	INFECTION 1	0	0

Figure 7: List of three leading causes of death by age group in 211 patients autopsied at the Phoenix Indian Hospital 1955-1960.

Indians noted. Infectious diseases were primarily responsible and the leading cause of death (39%) for the entire group was on this basis; poor sanitation and limited facilities for practicing modern hygiene are felt to be the main contributory factors. Other leading causes of death were noted to be due to cardiovascular disease, malignant neoplasms, Laennec's cirrhosis, accidents, and congenital and neonatal causes (Figure 6).

Beside the high death rate from infectious diseases, some other unusual patterns were noted. Rheumatic heart disease was found to be more common than myocardial infarction and the latter was almost always associated with either diabetes mellitus, common in this population, or essential hypertension. Nutritional liver disease due to ethanol ingestion was a significant problem and an increasing one. Biliary tract disease was found in 54% of adults over 21 with a 7:3 ratio of females to males and the factors responsible for this briefly mentioned. The types of neoplasms found in this population are listed and briefly discussed with emphasis on the high number of biliary tract malignancies and the absence of lung cancer.

The hazards of reservation lifes were noted to account for the large number of accidents and slow acceptance of modern medical care for the maternal deaths. Brief mention is also made of the types and number of deaths due to other cardiovascular, respiratory, gastrointestinal, neonatal, congenital, genitourinary and hematological diseases.

Death by age groups revealed infection to be the leading cause through age 40 and in some of the older age groups. Cardiovascular disease was the leading cause in the 41-50 group and cancer in the 61-70 and 81-90 groups. Neonatal, congenital, and accidental deaths were more common in the young, and as expected, cancer and cardiovascular disease in the older age groups (Figure 7).

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Dr. Breneman

Five Years Experience With Procaine-Steroid Injections

A Diagnostic-Therapeutic Tool For Patients With Low Back Pain

by

James C. Breneman, M.D.

The article by James C. Breneman, M.D. is a worthwhile article since it calls attention to injecting tender trigger points in the hip area in connection with low back pain. Injecting of these areas certainly is helpful in many instances, but by no means is it the answer to the low back problem. There is a great deal of controversy regarding the interpretation of the pain around the sciatic notch area. Some of this pain is certainly referred pain from higher up and some may be in connection with local spasm and irritation of the muscles on the posterior aspect of the hip. In any event, local injections of trigger points, whether in the hip or in the low back area, are helpful in both the diagnosis and treatment of low back pain, and it is for this reason that the present article is recommended for reading.

IN 1960 an estimated 2,000,000 patient-visits were made to physicians because of a familiar group of symptoms and complaints variously known as low back syndrome, lumbago, sciatica, herniated disc syndrome, sacro-iliac spasm or strain, and no doubt other names. *Life Magazine,* in commenting on President Kennedy's continuing disability, stated that about 20,000,000 Americans suffer some degree of disability due to low back pain every year. In addition to vast amounts of acute and chronic human suffering, this disability presents a tremendous economic problem. Industry, health insurance and liability companies, the Veterans Administration, and compensation boards are keenly aware of this financial burden. Nearly all agree it is the major disease expense they must bear.

It is, then, disquieting to consider the present status of diagnosis and treatment for this condition, as has recently been so well done by Kelly.[1] "Before 1940," he wrote, "most of those who worked on the disc agreed that it occurred in something like one per cent of the cases." Yet today there appears to be an almost universal belief that 95 per cent of sciatic pains are surgical problems and can be relieved by decompression of nerve roots, "even though the prolapsed-disc theory has never been proved." A disturbing statement was made by Lewin.[2] After careful selection of candidates for discectomy, he said, "Operation on a protruded disc is followed by good to fair results in about one-half of the persons operated on." And re-operation on those with poor outcomes has been disappointing more often than not.[3,4]

Diagnostic inaccuracies and difficulties have no doubt played a big role in the unpredictable results of the disc surgery. A detailed history, a complete physical and neurological examination, a lumbar puncture with fluid dynamic studies, extensive spine x-rays, several weeks of traction and bed rest as a therapeutic test, and a repeated spinal puncture with the injection of radiopaque

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oil intrathecally to contrast an intervertebral deformity – any or all may make up the diagnostic study to determine whether or not a herniated disc exists and a laminectomy seems indicated. After undergoing this formidable array of procedures a patient should be entitled to a definite diagnosis, a definite indication for radical therapy and a definite prognostic probability. The facts indicate that the aggregate of these studies may still leave the exact cause of the syndrome in doubt. Certainly the likelihood of a discectomy relieving the symptoms remains too uncertain to be considered much more than chance.

What is obviously needed is a diagnostic maneuver which is harmless, quick, accurate, inexpensive, simple to do, and which requires no complicated equipment. It would be desirable that it is applied at some distance from the central nervous system and the sciatic nerve. If, in addition, the procedure had *therapeutic* effect, such a nearly ideal maneuver would certainly be a valuable addition to medical practice.

It is the purpose of this paper to report on such a procedure which has been the subject of an earlier article:[5] procaine-steroid injections.

Material

Patients with symptoms and physical findings suggesting the herniated disc syndrome were given a diagnostic injection of 2 per cent procaine into the peritrochanteric area. If there was significant immediate relief, 40 mgm. or more of methylprednisolone acetate (Depo-Medrol, Upjohn) was immediately instilled into the same site by the simple device of changing syringes. After giving over 1500 tandem injections of this type, it has been found that the usual preparation of the area need be no more complicated than to swab the area vigorously with alcohol. The guilding finger is the index finger of the left hand and it is similarly swabbed with alcohol. The guiding finger is the index points are isolated by palpation. Usually a tender ridge or elevation radiates out from the trochanter in the direction of the muscle fibres. As a rule this elevation points from the trochanter directly toward the area of most severe pain. It is noteworthy that the areas involved are, in normal adults, some 12 or more inches from L 4-5, and several inches from the sciatic nerve as well.

With the guiding finger on the spastic area, a skin wheal of procaine is made. Then a 1½ inch, 22 gauge needle is advanced down into the tender area while continuing to inject the procaine. When the trigger area has been properly infiltrated it will usually smooth out and become non-tender; in spite of injecting 2 to 3 cc. of procaine into the already elevated area, it will sink. Without a doubt this phenomenon

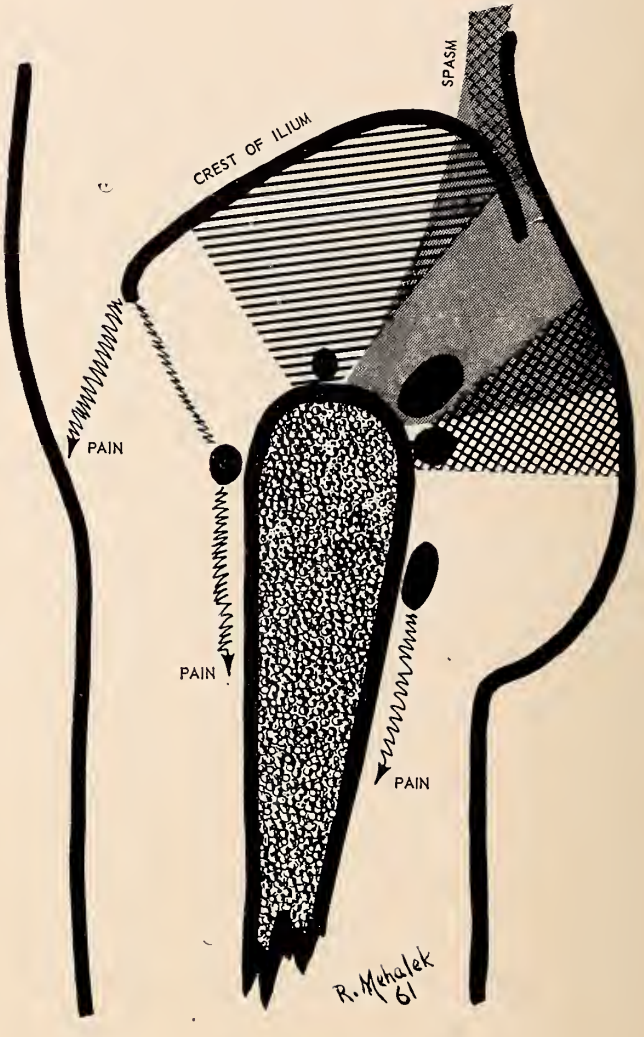


Figure 1.
Diagram shows where tender swellings are usually palpated. Shaded areas show general directions of spasm and pain radiation from the area of the greater trochanter. Note that all injection areas are anatomically four to seven inches from the sciatic nerve. This removes any possibility of the local anesthetic obscuring any serious central nervous system disorder.
Figure courtesy Current Therapeutic Research.

reflects local relaxation of a spastic muscle attachment. Injection of procaine merely removes the spasm temporarily. The ensuing injection of steroid prolongs this spasmolysis.

This procedure has been followed in 240 patients over the past five years. Those in whom satisfactory relief was achieved have been symptom-free for up to three years. Recurrences are seen rarely after the first six months. Another injection may be given for each recurrence.

The 240 patients in this five-year study ranged in age from 16 to 80 years and 112 were men. Because of bilateral involvement in 54 patients, a total of 294 "sides" were studied. As may be seen in the following tabulation, the generally accepted criteria for diagnosis of the disc syndrome were fulfilled in all:

Diagnostic Criteria	Number of Patients
History of sudden pain following injury	239
Pain of low back and sciatic nerve distribution	240
Exaggeration with cough or sneeze	240
Straight-leg-raising test positive	240
Spasm L 4-5, tenderness or scoliosis	240
Tenderness in sciatic notch	238
Sensory change — paresthesia	226
Motor change—weakness, atrophy	222
Reflex changes — decreased Achilles tendon reflex	121

Sixteen had acute syndromes, the remainder chronic ones of from one month to 25 years' duration. Roentgenographic abnormalities of the lumbosacral area were described in 60, and myelograms were "positive" in 13. Most had been treated conservatively over the months or years with salicylates, support, heat, and physiotherapy but 11 had submitted to a total of 21 surgical procedures without relief. *In the sense that these varied treatment methods, alone or in combination, had not produced real improvement, each patient in the series served as his own control.*

Results

The response pattern in these patients was remarkably uniform. The procaine - induced relief of pain, muscle spasm and pelvic tilt which was regularly seen lasted about two hours. Then an estimated 50 per cent of the discomfort gradually returned. Over the next 18 to 24 hours pain and disability slowly diminished again, presumably as the microcrystals of corticosteroid dissolved and exerted their local anti-inflammatory effect. Usually one or more additional treatments were required to give complete and enduring relief. This sequence of pain, relief, recurrence and final disappearance was consistent enough to serve as an additional clinical control.

If a patient could return to his former job and activity with comfort, he was considered "cured," and this was the case in 226 (94 per cent). Fourteen patients had some transitory relief but still had significant discomfort, and were not "cured." For most of these, response to the first injection was not impressive enough, in their opinion, to warrant a second.

No significant side effects attributable to the corticosteroid were noted in this study, even though as much as 120 mg. might be used during one set of infiltrations. This was in agreement with the reports of other workers,[6,7] and may be because of the physical characteristics of methylpredisolone acetate, although other repository steroids might well be equally effective). The microcrystals presumably form a depot at the site of injection and slowly dissolve giving intense anti-inflammatory effect locally but only low levels in the general body fluids and tissues. The local effect may then be prolonged. For example, the steroid was recovered from human joint fluid aspirate as long as 21 days after 40 mg. had been injected.[8]

Interpretation

Man is musculoskeletally a quadruped. His evolution to biped status has thrown his entire weight onto one or the other hip joint with every step he takes. This joint has evolved from a functional position perpendicular to the spine to one in line with it. This shift in position twists the inserting muscles into interlacing fans with many tendons tightly pulled across the greater trochanter. When one considers the pounding effect of walking with all one's weight distributed through a single joint, serving a function for which it was not originally designed, it is amazing that this vulnerable mechanism does not break down more often.

Disorders in this highly evolutionized area upset muscle balance and painful spasm follows. The intimacy of the muscles about the hip joint makes it likely that contiguous muscles and connective tissue structures then become involved

in this same pain-spasm cycle. Such a painful reaction could extend from T-12, where some fibers of the psoas originate, to below the knee where the vastus lateralis inserts. Involuntary sparing of a painful hip by elevating it causes imbalance in weight bearing, inciting the familiar pelvic tilt. The palpable spasm of the erector spinae muscles reflects this attempt to elevate the affected side. And, according to Wilson,[9] this spasm causes pelvic rotation when the straight-leg raising test is done, "which in turn irritates the painful spinal structures and the spastic sacrospinalis muscles."

The neurologic findings of the classical disc syndrome are typically those of lower motor neuron involvement: weakness, atrophy, deep reflex loss, sensory changes and pain of radicular distribution. If herniated disc material between L 4-5 were the cause, it would have to trap and exert pressure against the loosely suspended nerve roots. It is hard to conceive how the herniated nucleus pulposus could accomplish this regularly and efficiently. Furthermore, in the typical syndrome, several spinal nerve segments are involved neurologically. The ankle reflex arc is through S 1 and S 2, for example, the anterior tibial motor weakness is from L 5, S 1, and S 2, whereas femoral cutaneous sensation is from L 3. If extruded lumbar disc material were to explain this whole picture, it would have to compress selectively each of these nerve roots at each level each time, an unlikely situation. On the other hand, if only one segment were involved, this would be in favor of a central nervous system lesion.

There is one place, however, where all these segments, L 3 to S 2 are combined, obviously vulnerable, and exposed to lower motor neuron involvement. That place is the sciatic nerve trunk where it leaves the pelvis. Only in this location can a single lesion cause all these motor and sensory manifestations.

AS THE nerve exists from the pelvis, it may pass below, through or above the piriformis. In 10 per cent of cases the muscle splits the nerve. (The remarkable relationship of this and other nearby structures to the nerve has been the subject of careful anatomic study.)[9] Then, as it runs down the leg it passes under the gluteus maximus and over the gemelli (superior and inferior), the obturators (external and internal), and the quadratus femoris. Disorders of these muscles and adjacent fibrous structures involving edema, spasm or stretching must distort the "sciatic tunnel" and subject the entrapped nerve to abnormal tension, pressure and torque.[10] Bursitis, synovitis, capsulitis, myositis, arthritis, ischemia, even fatigue or poor posture might produce this inflammatory distortion. The nerve trunk is a pain-sensitive structure,[11] so once begun, the well known pain-spasm-pain cycle would operate to further intensify symptoms and to perpetuate them.

MOST patients with the syndrome agree that coughing and sneezing are much more likely to aggravate the pain than constant straining. This is untenably explained on the basis of suddenly increased intraspinal pressure against the nurve roots. Astudy of the hydrodynamics of cerebrospinal fluid shows that the greatest increase of spinal fluid pressure is produced by slowly and continuously increasing intra-abdominal pressure, e.g., forceful straining. Caughing and sneezing cause almost imperceptible pressure increases. These acts, do, however, inflict terrific jolting effects on the spastic muscles of the low back and pelvis and may, in turn, put a sudden jerk on the trapped trunk of the sciatic nerve. The variable degrees of symptomatic relief obtained in some patients by bracing, taping the back, or from spinal fusion may be because of the relative immobilization of these muscles. If one carefully traces out the painful area it frequently corresponds with the position of a particular muscle rather than the distribution of a certain nerve trunk. This suggests that much of the pain of the disc syndrome is purely peripheral muscle spasm with no neurogenic factor superimposed.[12]

The remarkable feature about the muscles comprising the "sciatic tunnel" is that all of them radially converge toward, and are attached to, the proximal end of the femur.

Evidence from the present study was certainly convincing enough to justify full concurrence with the opinion of Key and Conwell[13] that " . . . patients with low back pain and sciatica should not be subjected to spinograms and intraspinal operations until conservative treatment has failed to relieve their symptoms." To the concept of "conservative treatment," which comprises bed rest, analgesics, muscle relaxants and physiotherapy, repository steroid infiltration should now be added.

Summary

Patients with the so-called herniated disc syndrome were injected and reported on to show:

1. There are sound anatomic reasons for focusing diagnostic and therapeutic attention on the hip rather than the spine in this condition. The one point at which all neurologic components of the syndrome converge is where the sciatic nerve leaves the pelvis. The one area where all the muscles comprising the "sciatic tunnel" meet is the hip.
2. Inflammation of structures around the greater femoral trochanter on the involved side, with spasm, edema and pressure, may distort the "sciatic tunnel" and embarrass the pain-sensitive sciatic nerve trunk. Typical low back pain results.
3. Procaine followed by repository steroid injection into the inflamed structures relaxes the spasm, decompresses the sciatic nerve and may thus relieve "disc syndrome" pain and disability.
4. Myelography and radical surgery should not be considered until conservative measures, including procaine-steroid infiltration, have been used.
5. This regimen, using one to 12 injections of repository methylprednisolone acetate per patient, provided prompt and lasting relief in 226 (94 per cent) of 240 and side effects were trivial.

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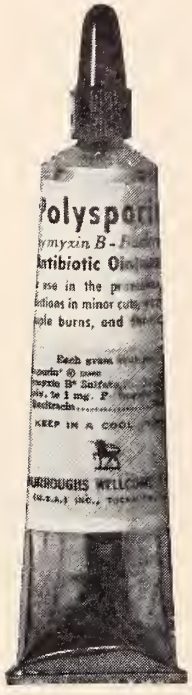
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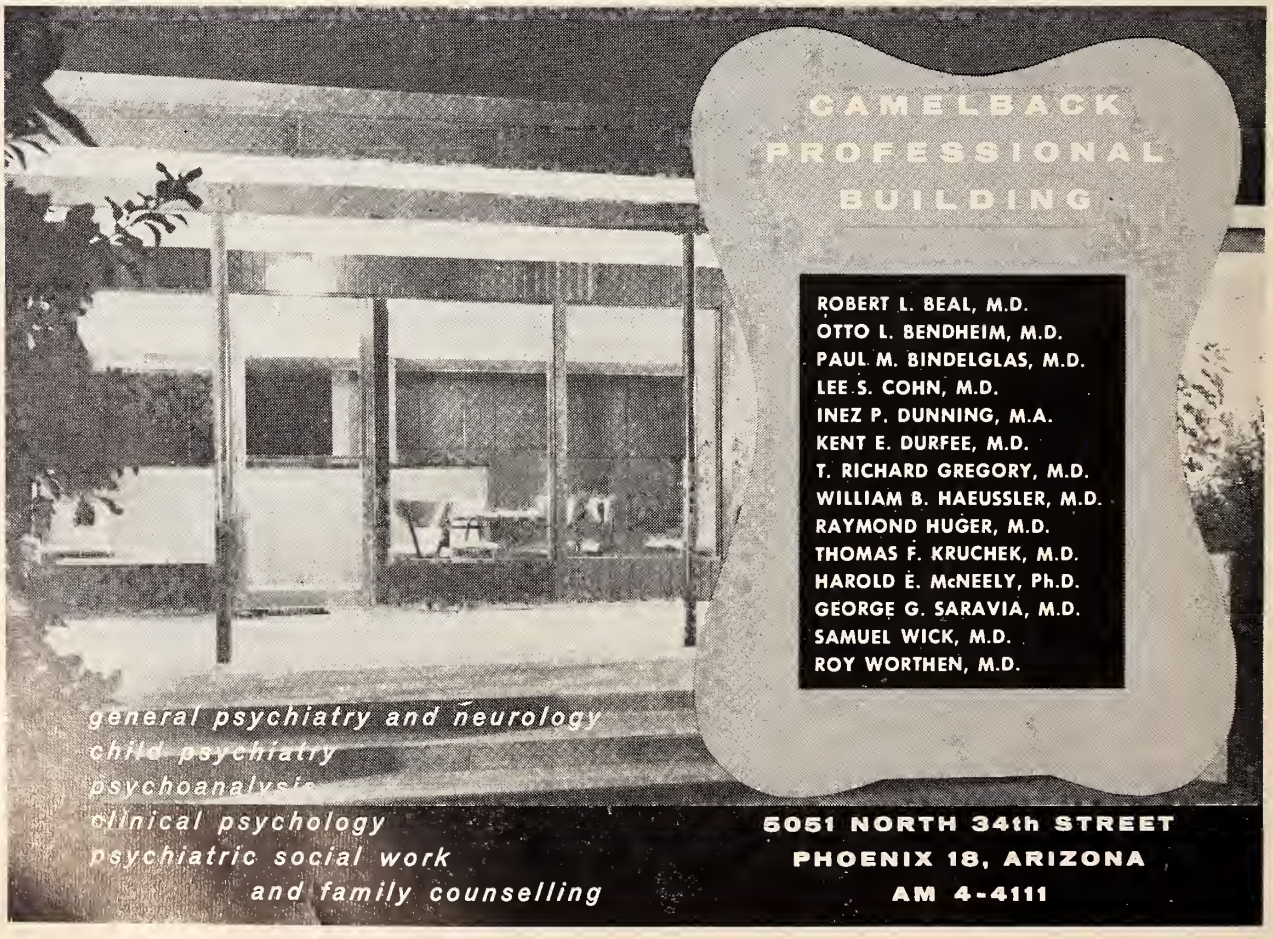


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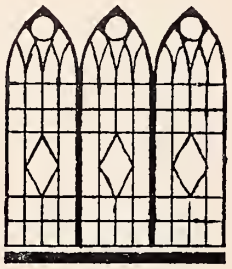
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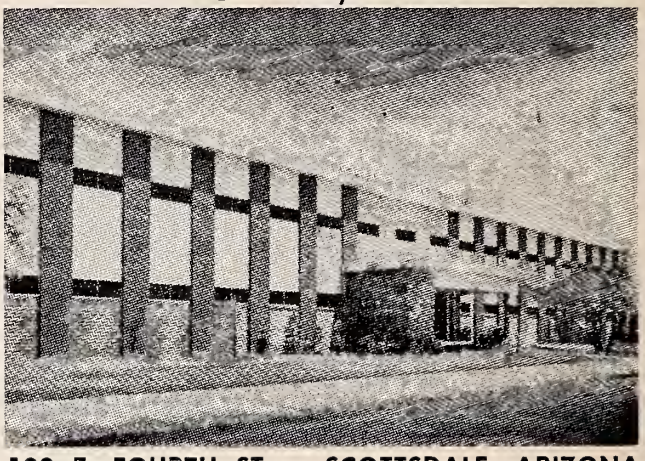
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1. Welch, C. E., Diverticula of the Alimentary Tract, in Conn, H. (editor): Current Therapy—1961, Philadelphia, W. B. Saunders Company, 1961, pp. 224-225.

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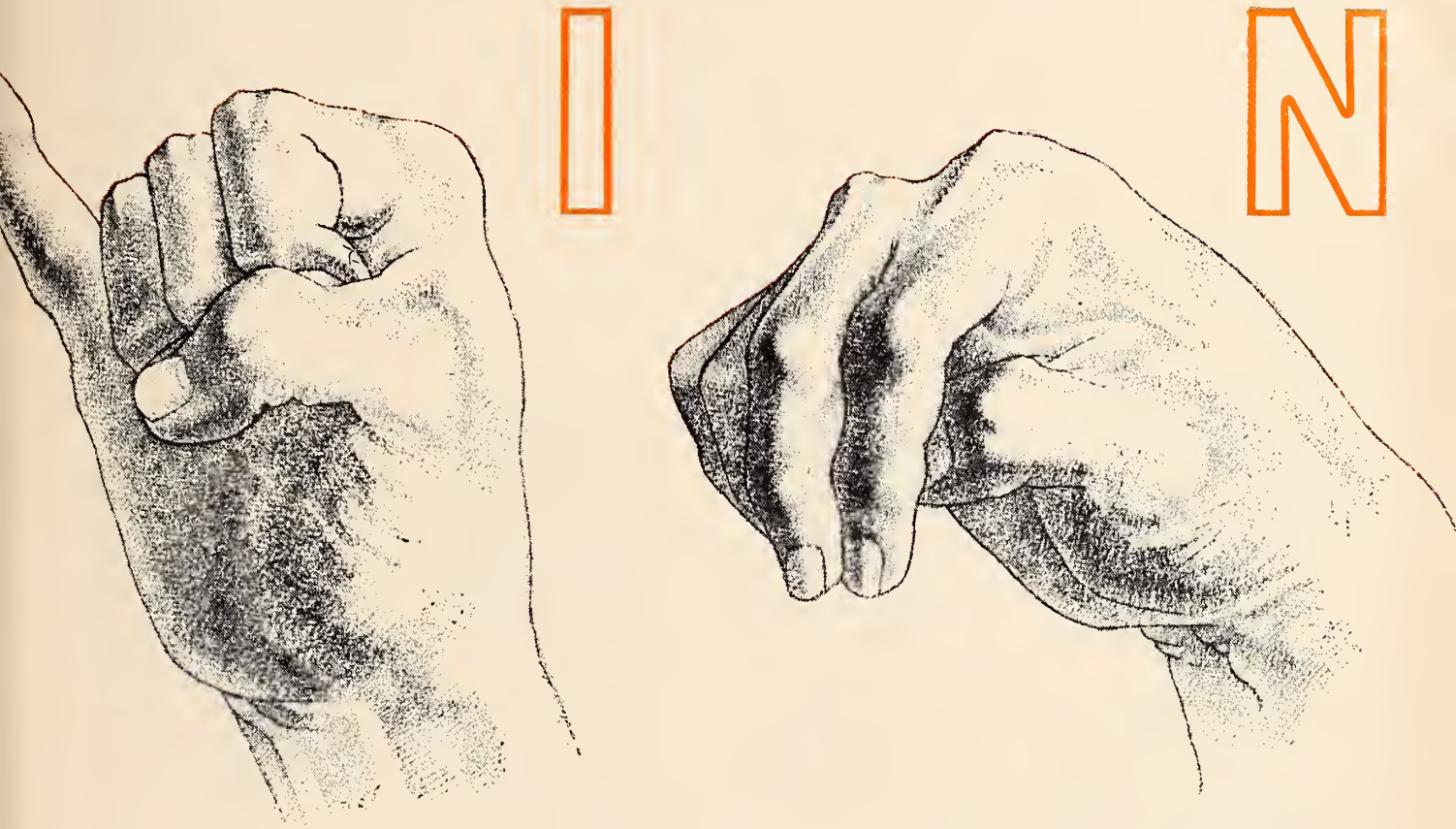
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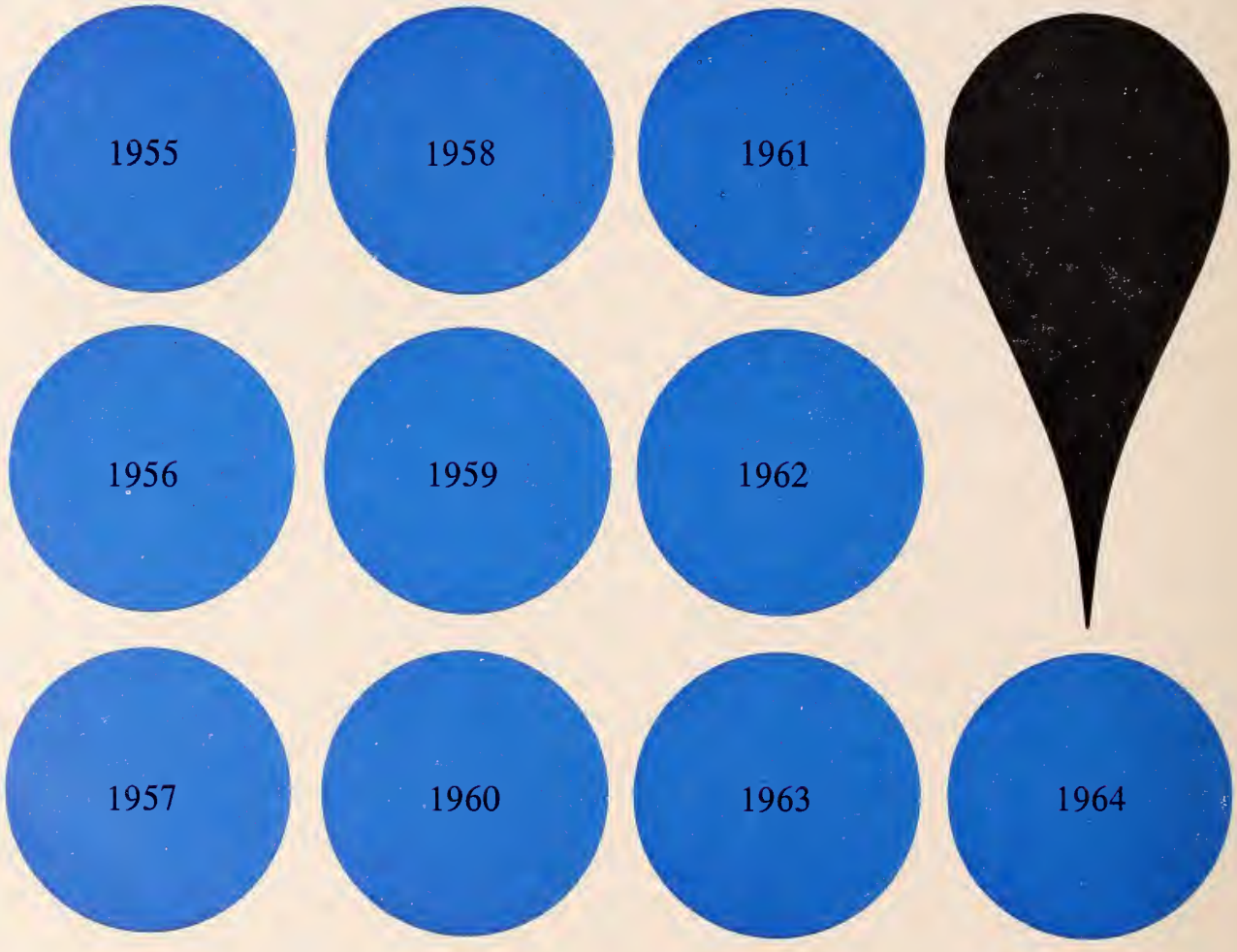
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A Word To The Wise



Dr. Brewer

I KNOW now why there are no skyscrapers in Russia! In 1962, when we visited the land of the Soviets, we were led to believe that the Russian fiscal potential could not support their construction. In our naievete we could not perceive a kernel of civil defense in this simple observation.

We all knew, almost instinctively, that the Soviet government determines the site and size of cities and industrial plants. But we did not realize that this is done on a disbursed basis with defense in mind. And skyscrapers are discouraged for the same reason; and large parks beautiful parks — are placed between apartment houses to lessen the effect of bomb hits.

Whether you have been there or not, everybody knows about the subways in Moscow and Leningrad. Beautiful, huge, and deep, and superbly efficient. So deep one cannot see the bottom from the entrance ways; so deep it requires *two* escalators to get down. "Something about the soil characteristics," explained our Intourist guide, while we occupied ourselves with the impressive murals. But I do remember the massive doors at the entrances, which could be closed to seal off the subways into the best of shelters. Civil defense again.

What I did not know in 1962, was that Russian civil defense planning began in 1931, over thirty years ago, and is now oriented to withstand the first blow and still being able to retaliate. Sounds familiar. Just like our military — not civil defense — policy with SAC bombers airborne around the clock to insure our own ability to retaliate — *after* the first blow.

Remember the Russian people and their soil have been desecrated and devastated by foreign invaders repeatedly. Maybe this is the root of our own ennui in the area of civil defense — we haven't been invaded since the War of 1812. Soviet propaganda has convinced the Russian peoples that the United States will strike the first blow. Unthinkable to us, but we were asked more than once by the uncensored man on the street when we thought the U.S.A. was going to start the next war!

Nor did I know that the entire Russian civilian population is required to take courses in civil defense under penalty of the law; some sixty-four hours worth up to the present. There is an emphasis on military medicine in the fel'dsher and medical school curricula, but everyone, doctors and layman alike, must be prepared in all aspects of civil defense.

In the USSR civil defense is as important as military defense. In the USA we are eminently strong militarily. What about our civil defense?

Actually there is no special virtue in comparing and contrasting Russian and American civil defense measures and attitudes. There is not reason to emulate them. There is no competition for superiority in this field. It is a costly business — if war does not come or we are not invaded. And some of the important information is admittedly dry material, some dangerously philosophic if you think hard enough. But, dry or dangerous, we have just had a prediction of hot war in Viet-Nam, between the United States and Red China before the first of the year, 1965, just five months away! And Cambodia is charging chemical warfare across her borders with sixty-five human deaths. Saber rattling has become an accepted way of diplomatic life, I know; so has brinkmanship. Maybe we need a hot wire to Peking.

But why all the talk about Russian civil defense? I stayed over in San Francisco after the AMA meeting and attended the Interstate Conference on Disaster Medical Care with William Moore, M.D., our State Commissioner of Health. I am very glad that he and I were privileged to attend. It was certainly worth the extra day and it started me to thinking about Russia again and more particularly the war posture of the world.

Russia was not on the agenda; neither was civil defense actually. The latter to most is old hat, passe, boring, even unnecessary. So now we call it disaster medicine, an inclusive term, which is more acceptable to all, what with earthquakes and tidal waves and fires and floods close to home. But we did learn a little bit more about war in the nuclear age and man's increased potential for insane, almost unspeakable, brutality.

And I can't remember a single allusion to bomb shelters or radio-active fallout! (For these I recommend you read, or browse through, "Strategy for Survival," by Martin and Latham or "Mathematics of Death" by Kahn.)

Cecil Coggins, M.D. of the California Disaster Office, among other things, did discuss bacteriological warfare briefly. And I hope Earl Baker, M.D., chairman of our subcommittee on disaster medicine, will entice him to Tucson next year for our annual state meeting. He presents a fascinating, awesome story well.

In one simple military maneuver, under simulated war conditions, it was possible to kill, yes kill, one-half the population of one of our large coastal cities with no noise, no indication that it was happening, undetectable until it did happen. This was with one organism, Pastuerella pestis, The Black Death! You may think the mortality mentioned above is exaggerated, but it is not. Good, solid scientific proof is available. And this is only one bug! There is a whole list of possibilities that man in his fiendish moments has drawn up and experimented with and standardized for *BW*, bacteriological warfare — not to mention some of the toxins, which most of us have forgotten about. And it is possible to devastate crops and fertile farm lands for slow starvation of our country's defenders. One wonders whether the physicians are ready, could get ready, to carry out their medical duty in such a situation this year — or next.

After lunch we got down to a single, specific disaster, the All Hallows Church fire in San Francisco last May. This was interesting, this was real and could happen to us in privileged Arizona with our relative freedom from natural disasters. Peter Boudoures, M.D. of the St. Luke's (San Francisco) medical staff and Mr. Joseph Zem, hospital administrator, took turns discussing the problems that developed when thirty-five major burns landed in their emergency room in ten minutes with no warning at 11 PM one night. What does one do when there is no more room, no more stretchers, bandage, morphine, plasma, tracheostomy tubes? Who pays for it; $15,000 in three hours in St. Luke's case.

San Francisco had, and has, a good disaster plan. As a result of this experience, J. William Conroy, disaster corps director, in an interview by the San Francisco Call Bulletin said, "Civil defense, with emphasis on bomb shelters and escape routes, has become subordinate to the newer aim: to be prepared for castrophes like that in the church hall." He recognized the importance of radio communication on independent networks by medical facilities, both public and private. Also he noted that their St. Luke's Hospital had its surgery, recovery room, intensive care and central supply concentrated on one floor permitting the fullest use of the most-needed facilities with the least motion. Hospital planners take note!

What do we need in Arizona in the area of disaster medicine? Several things as I see it. First of all, each of us needs renewed interest in our role as doctors in the face of a castrophe, natural or man made, in our own home towns — each of us, not just the members of our county medical disaster committees. We need to meet, to review and to plan. We need to devote time in our annual state meeting to think beyond our home town boundaries to the borders of our state. We need more than thirty minutes on our program for one interesting speaker; we need a whole day to extend our knowledge and prepare ourselves to do our best when we may be needed most.

We need to bring our friends and allies in nursing and dentistry and veterinary medicine and pharmacy and optometry into our discussions and planning, locally and state wide — under the aegis of ArMA, not OCD.

We need Good Samaritan legislation, not necessarily the same as that which failed of passage as HB4 and SB58 in our last state legislative session.

These, I think, were good bills and were intended to solve a problem, notwithstanding the pros and cons, legally and morally, and the positions of the AMA, ACS and the National Safety Council. The Good Samaritan laws of some fourteen states for the most part deal with the licensed physicians in those states. We need legislation to include those in training, internes and residents, and nurses and dentists within Arizona and which, most importantly, will grant immunity across state boundaries. This can be done! If we can pay for education across state lines under the WICHE pact, we can accept medical help from our sister states in a catastrophe — or even lend them some of ours conversely. And our legal profession today can do just about anything!

We need inter-state disaster pacts, not only covering the immunity of medical personnel, but the use of material across state boundaries. The Office of Civilian Defense should be in the Department of Public Health. Fortunately for Arizona, we are about to have a full-time Director for Disaster Medical Care Planning in our Department of Health. We need a pact that will provide liaison with California, Nevada, Utah and New Mexico, at least, with regard to unification of plans, terms, legislation, packaging and communications systems, so that, in the event of a natural disaster, no time will be lost in interpreting state laws, rules and regulations to fit the situation.

We need to urge the Armed Forces Committee of our National legislature to redefine civil defense so as to include peace-time catastrophe as well as military attack. This would cut red tape in obtaining permission to use civilian defense facilities and supplies in great natural disaster, as is presently required. (If you are interested, it's H.R. 8200.)

Certainly this is a lot to do. Maybe impossible. But it all should be done.

"We who are wise, must not require too many words to be sufficiently prepared." Chandler, Arizona, May, 1964.

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ANNUAL MEETING — A SUGGESTION

ON THE final morning of the last Arizona State Medical Association Meeting in Chandler several distinguished guest speakers addressed an audience of approximately twenty physicians, or less than two per cent of our membership. That same afternoon at the meeting of the Arizona Ophthalmological Society in the same location more than thirty-five ophthalmologists attended a program by one guest speaker. This attendance represented more than eighty per cent of the society membership. These ophthalmologists indicated that attendance would have been much less if their meeting had been held as a breakfast or luncheon meeting.

These statistics prompt your editor to suggest that the Scientific Assembly Committee consider the possibility of setting aside one afternoon in which the scientific sessions are divided into subsections representing various specialty groups and a general practice group. A member of the State Association who was not a member of the of the specialty or general practice societies would be automatically invited to attend any of these meetings, if he were registered at the meeting. A general practitioner could attend his sectional group or he might wish to attend a specialty meeting in his particular field of interest.

The American College of Surgeons, the International College of Surgeons and the American Medical Association divide portions of their meetings into subsections. To divide one afternoon of our state association program in this manner might help to conquer the perennial pest of poor attendance.

Robert F. Lorenzen, M.D.
Editor

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THE MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO ...ITS HISTORY

by

Robert E. Hastings, M.D.

SINCE 1964 marks what our confreres south of the border have designated their Century of medicine, it seems appropriate to recount, briefly, the history of the Medical Society of the United States and Mexico. This Society is young and relatively new — having been founded in 1957.

The Society grew out of numerous conversations between a relatively few physicians from Arizona, Sonora, Sinaloa and Jalisco at regional and county Society meetings in Tucson, Hermosillo, Mazatlan and Guadalajara over a period of years. It was finally decided by this small nucleus to have an organizational meeting, and one was held in Tucson on November 24, 1956. Attending were some forty physicians from both sides of the border. Committees were selected to draw up a constitution and proceed with membership matters. On March 16-17, 1957 at Hermosillo the "founder group" met in order to adopt the constitution and by-laws. At that meeting it was decided that the objects of the Society would be:

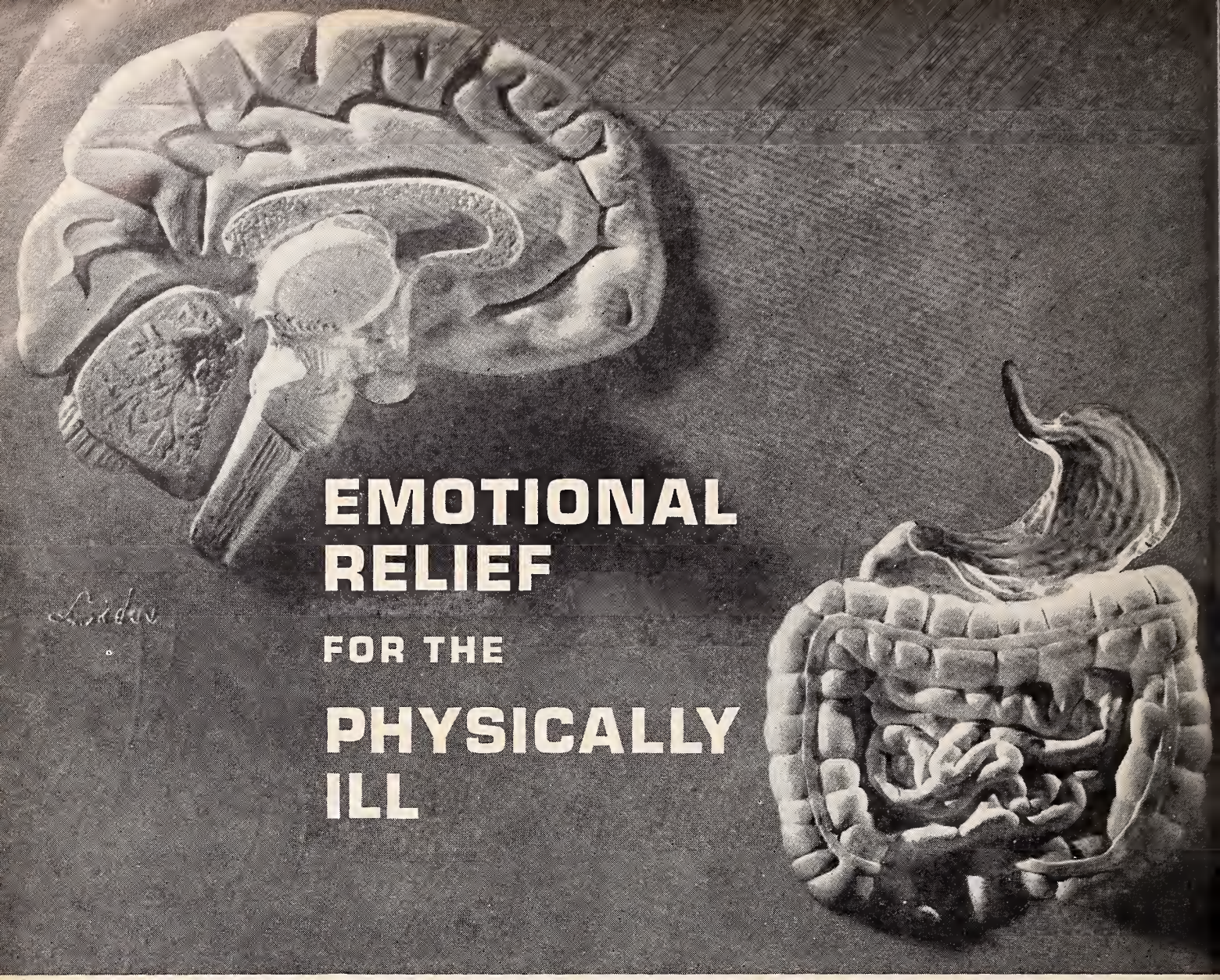
1. To unite the practicing physicians of the U.S. and Mexico, with the object of creating a better understanding of the needs in medical problems.

2. To promote friendship among all its members.

3. To cooperate in all the problems related to medical education and the practice of medicine, and to cooperate with Public Health authorities and contribute with all means available to improve international relations between both countries.

The first meeting of the Society was held in Mazatlan in May, 1957, the second in Tucson in December 1957. Since then meetings have been held annually in Guadalajara, Scottsdale, Guadalajara, Hermosillo, Tucson and in 1963 at Guadalajara. This year's meeting is scheduled for Scottsdale December 9-12th. At each of the past meetings speakers have been chosen not only from the membership but many physicians of international repute have presented papers on subjects of mutual interest on both sides of the border. The official organ for the publication of papers presented before the Society is the journal *Arizona Medicine*. Membership in the Society is open to "any physician graduated from an officially approved medical school, who is licensed to practice medicine in a state of either country."

Officers of the Society for 1964 are: Dr. R. E. Hastings of Tucson, President; Dr. Carlos Tapia of Hermosillo, President-elect; Dr. Max Lockie of Buffalo, New York, Vice-President; Dr. James Nauman of Tucson, Secretary; Dr. Lucy Vernetti of Phoenix, Treasurer.



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Dr. Waldron

Disaster Medical Care—Part II

by
Carl W. Waldron, M.D., D.D.S., F.A.C.S.

HOSPITAL disaster plans should provide for THREE PHASES of disaster conditions. PHASE ONE concerns disaster within the hospital caused by fire, explosions, epidemics. etc. PHASE TWO applies to extensive local diasaters resulting from any cause and for which the hospital is expected to receive and care for many casualties from the region which it serves. PHASE THREE applies to national disasters resulting from an all-out mass attack on the United States, in which case medical facilities will function under the direction of the Department of the Army.

Hospital plans have certain basic provisions which may necessitate some changes or modification of the normal organizational structure for the usual hospital activities. In large hospitals with many departments and clinical services, specific plans and subplans are indicated.

The American Medical Asssociation, AMA, and the American Hospital Association, AHA, will assist all hospitals in their disaster planning. The most recent publication of the AHA, "Check List for Hospital Disaster Planning", G217 1964, may be secured at no charge to physicians by writing Mr. Thomas D. Holman, Secretary of the Committee on Disaster Medical Care, American Medical Association, 535 North Dearborn Street, Chicago, Illinois, 60610. This manual presents much valuable information in the foreword and in the preamble to the check list proper which was reviewed by many medical societies and hospitals before publication. It is most comprehensive as it covers sections on Basic Assumptions, General Provisions, Organization for Disaster Operations, Headquarters, Alerting, Activation of Plan, Receipt and Control of Casualties, Decontamination Procedures, Traffic Flow and Control, Discharge Procedures, Consolidation of Patient Areas, Reallocation of Patients to Expanded Bed Areas, Expansion of Patient Areas, Evacuation and Survival Planning, Emergency and Reserve Supply Availability, Maintenance of Physical Plant, Personnel Protection and Plant Safety, Internal Communications Systems, Vertical Transportation, Food Service, Sewage and Waste Disposal Control, Records and Record Keeping, Emergency Morgue Facilities, Public Relations and Press Releases, Personnel Identification, Orientation and Disaster Tarining, Volunteers, Liaison with Civil Defense and Other Organizations, Frequency of Review and Evaluation of Existing Disaster Plan.

Many of the items to be checked are chiefly applicable to large hospitals but the consideration of all items would be of value to the administrator and physician coordinator of even the smallest of hospitals. Such would improve its preparedness for disasters and improve each phase of its disaster plan to assure a greater degree of effectiveness and promote sound orderly action for activation of the hospitals to any degree of emergency.

Receiving and sorting (Triage), in case of large scale disasters, must be staffed by physicians, nurses, and other personnel who can think and act promptly and be governed by the concept of "the greatest good for the greatest number". The magnitude of the disaster and an estimate of the number of injured afforded by adequate communications is essential for the best operation of the Sorting Area. The number of seriously injured that can be handled in a given period of time will affect the decisions and disposition of the patients. When necessary, consideration should be given to setting up a First Aid Station for ambulatory or other patients with minor conditions in a nearby building. This will conserve the facilities and the time of surgical

and resuscitative personnel of the hospital for the care of critically injured who have a good change of survival with prompt therapy.

Sorting decisions may require changing during the course of the emergency.

The basic concepts of sorting follow the pattern set up for mass casualties. Persons with minor injuries or burns not involving the hands, and the emotionally disturbed, do not require hospitalization. Able to take care of themselves, they may be treated as out patients and many may be put to work if helpers are needed in the disaster situation.

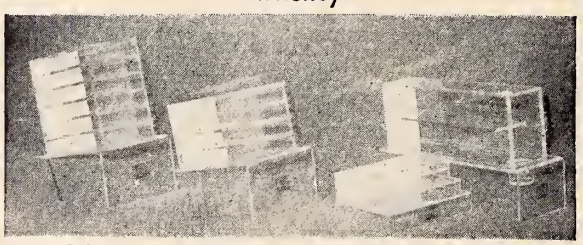
The **immediate category** of sorting consists of casualties where recovery may be expected with prompt surgical or other treatment for respitory obstruction, hemorrhage, shock and a variety of injuries not requiring lengthy operative procedures.

The **delayed category** is for disaster victims for which definitive treatment may be postponed without danger or loss of life or limb.

The **expectant category** consists of casualties whose recovery is most unlikely, particularly under the limitations of facilities and personnel in the hospital under disaster conditions. Such patients are to be made as comfortable as possible in the hope that some may receive definitive care when the over-all situation improves. While not the humanitarian approach, it is the proper course to be followed. Early definitive care is not justified, particularly for patients in this group as it may well endanger the lives of other waiting patients. A sufficient number of clerks should be assigned to the sorting area to conserve the time of the physicians and nurses. If the community has a welfare department, it should send personnel to assist in registration and identification R & I of disaster victims and make preliminary records re diagnosis, disposition with entries re the administration of narcotics, tetanus inoculations, plasma etc. etc., with duplicate entries on tags to be attached to the patient. After sorting, the patients are moved to designated wards or sections of the hospitals — in large hospitals by prearranged transfer routes.

Doctor Waldron recommends the reading of an article appearing in Vol. 189, No. 4, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, entitled "A Hospital in a Disaster Area" by D. V. Langston, M.D. of Anchorage, Alaska.

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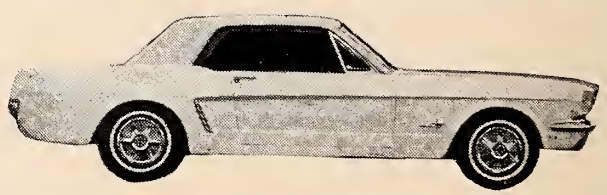
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THE HOSPITAL EMERGENCY ROOM

by

W. Herbert Springall, Jr.

IN a forthcoming article[1] an emergency room is defined as "an area (probably within or in close proximity to the outpatient clinics) where emergencies can be treated immediately, admissions made to the hospital, or referrals made to a clinic."

In a publication by the Hospital and Medical Facilities Division of the Department of Health, Education and Welfare, it is expected that the emergency services unit will be defined as a "clinic of the outpatient division where services are rendered to outpatients in the diagnosis or treatment of conditions determined clinically, or considered by the patient (or his representative) as requiring immediate physician, dentist, or allied services."[2]

The phrase "or considered by the patient (or his representative) as requiring immediate physician, dentist or allied services" is noteworthy and, indeed, leaves the way open for unlimited emergency room services. ". . . To the public's way of thinking, any illness is an emergency, and there's *always* a doctor at the emergency department."[3]

Public attitude toward the hospital is changing. "Physicians, faced with more patients requiring more care, are referring patients to the hospital for care." This trend, resulting from increased population and the need for complicated and expensive equipment not available in the physician's private office, has caused a transference of some of the charismatic quality, once attributed only to the physician, to the hospital.

Third party payers have had a hand in promoting the trend also. In many instances third party payers will pay their share of the cost of care only if that care is received in or from the hospital. This one fact alone has promoted the public attitude that the hospital is considered the authority on care by those in whom the public has placed its trust to choose sources of care. Probably the most significant demonstration of this change in public attitude is the use of hospital emergency rooms.

Hospital emergency rooms were first established as accident rooms. They were the source of care for immediate emergent cases. Today, only 20% to 40% of all cases seen in the emergency room are of this nature. The remaining 60% to 80% arrive as a result of one or several factors not necessarily related to emergent conditions.[4]

The physician may direct the patient to meet him in the emergency room because of the availability of equipment or consultation not available elsewhere, or because the third party payer will pay only if the patient is seen in the hospital, or because the physician suspects admission to the hospital will be necessary and it is more convenient to get together with the patient at the hospital.

On the other hand, the patient, having learned to think that the hospital is a substitute for the physician, will come directly to the emergency room for care rather than to the physician; in many of these cases the patient does not have a personal physician, or his personal physician is not available.[5] We find, then, that the need has evolved for diagnosis and treatment in both immediate physical and emotional trauma and other non-emergent clinical cases.

Mention might be made of the legality of emergency services. Mr. Walter Cheiftez, legal

Mr. W. Herbert Springall, Jr., is an Administrative Resident at the Tucson Medical Center, Tucson, Arizona

counsel for the Arizona Hospital Association, states in his Introduction to the Association's Consent Manual . . . "We share the belief of James E. Ludlam, distinguished counsel for the California Hospital Association, that basically the hospital is established to serve the needs of the citizens of this state, and when a decision is in doubt, the decision should be in favor of giving service."[6] Similar thinking seems to occur frequently in legal opinion and decisions, and is very apparent where patient consent to treatment under emergency conditions is required; in such cases the law in both California and Arizona holds that consent is implied when the patient or his reprsentative is unable to give it. This law, although it does not command treatment, is permissive and seems to assume that the desire, if not the obligation, is to give treatment.

Since most emergency rooms are now, or will become, clinical areas where initial diagnosis, treatment, and/or referral will be given to all cases arriving there, they should be adequately staffed to render or secure services for the expected case load over each twenty-four-hour period. This means there must be a competent group of hospital nurses and ancillary personnel present or on call in addition to physician services. Nurse, receptionist, orderly, and laboratory and X-ray technician services do not seem hard to obtain in support of the emergency room. It is adequate physician coverage of the hospital emergency room which most often creates staffing problems. I believe that any physician given, or assuming, categorical responsibility for general diagnosis, treatment, and referral of patients arriving at the hospital emergency room should be competent to recognize and treat a wide variety of physical and emotional problems.

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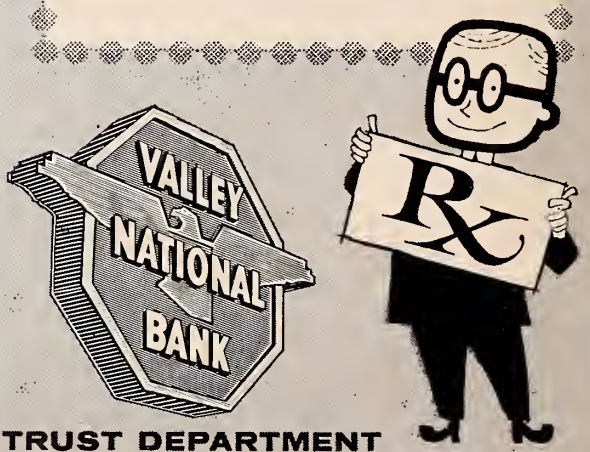
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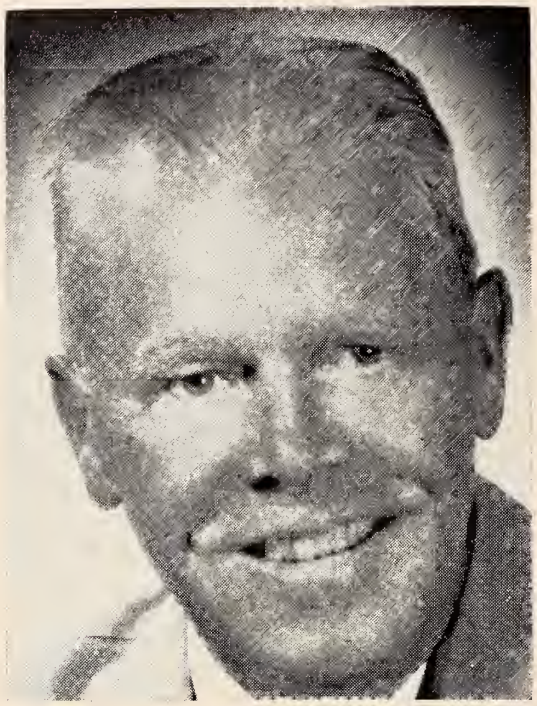
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*Clinical report on file, Medical Department, A. H. Robins Co., Inc.

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Charles Jones Newcomb

1905 - 1964

Charles Jones Newcomb, known as "Chuck" to his many friends, was born on November 16, 1905, in Kansas. Shortly thereafter his family moved to Waupun, Wisconsin, where he resided during his youth.

He received his B.A. and M.D. degrees at the University of Wisconsin, interned at City Hospital in St. Louis and had his specialty training at Chicago Lying-In Hospital.

Prior to World War II he practiced obstetrics and gynecology in Milwaukee. In 1942 he joined the U. S. Navy and was discharged in 1946 with the rank of Lieutenant Commander. Following his release from military service, he came to Tucson to practice.

Highly respected by the profession, he had served as Chief of Staff at Tucson Medical Center and at the time of his death was a member of the Advisory Board at St. Joseph's Hospital. He was instrumental in founding the Southwest Obstetrics and Gynecology Society and the Tucson Obstetrical and Gynecology Society, and was a past president of both organizations. Among his other specialty organizations were the Central Association of Obstetricians and Gynecologists, thet American College of Obstetrics and Gynecology, of which he was a Founding Fellow, and the American College of Surgeons.

Doctor Newcomb gave unstintingly of his time and resources to many worthwhile community projects. His high professional standards and many acts of personal kindness will live long in the memories of his colleagues and patients.

On June 23, 1964, after a usual day of seeing patients, death came quietly while he was sitting by his swimming pool. He was a victim of heart disease.

He is survived by his wife, Margaret; two sons, Ensign Charles S. Newcomb, USCG, of Port Arthur, Texas, and Barringer Newcomb of Oakland, California; a daughter, Mrs. Lee Newcomb Spooner and a grandson, Peter Spooner, both of Tucson. His mother, Mrs. Dorothy Newcomb, and a sister, Mrs. George Clark, live in Waupun, Wisconsin.



John E. Bacon, M.D.

1869 - 1964

"In the death of Dr. F. W. Goodwin, another pioneer of Arizona passes to the other shore, after a frontier life of over a quarter of a century, spent in the conquest of Arizona to civilization. Only a few years more and the last of the old pioneers will be called to rest. The work which has been done wresting Arizona from the control of savagery in the interest of American civilization will soon be forgotten for the greater part of their work is a sealed book known only to the pioneers and which passes away with them. If the mountain, the plain and the canyon could speak of heroic deeds the pioneers might be given to posterity; but it is not thus and the heroism and the hero passes into forgetfulness together."

This obituary was published in the Arizona Daily Star in 1892 and could well apply to the death that occurred June 22, 1964, in Pomona, California when Arizona lost its oldest pioneer physician, Dr. John E. Bacon. Dr. Bacon's Arizona medical license was No. 4 and was issued the first day Arizona issued medical licenses (1903).

Dr. Bacon was born March 1, 1869 in Blossburg, Pennsylvania. His father was also a doctor and to quote my friend, Dr. Bacon, "a darn good one too!"

Doctor graduated from the School of Medicine of the University of Pennsylvania in 1892. For a short while he practiced in Pennsylvania where he performed one of his first appendectomies. It is interesting to note that seventy years later the patient is still alive, retired and residing in Pennsylvania.

Approximately 1898, when he was an officer in the United States Army and was stationed at Fort Grant, he witnessed what he considered, and it no doubt was, the last round up and rebellion of the Indians. The reason for the rebellion was that several army privates molested and killed some Indian women. The Indian braves sent messengers to cover the countryside and to inform the other Indians of the outrage. In no time at all several thousand Indians collected outside Fort Grant and camped until after the men's trial was ended and the men were sentenced to serve time at Fort Leavenworth, Kansas.

After leaving the service Dr. Bacon practiced for a few years in Tombstone where he operated the Cochise County Hospital and served out-

laws as well as the Arizona Rangers.

During the early years of Arizona's medical history the followers of Lister were few. Even in the larger cities like Phoenix and Tucson, asepsis was seldom practiced. However Dr. Bacon was a firm believer in Lister's teachings and in spite of the difficulties involved he practiced asepsis at Fort Grant, Tombstone and Miami.

In 1910 he founded the Miami Inspiration Hospital located in Miami and was their chief surgeon for thirty years. While there he was active in community affairs and served one term as State Senator. He was President of the Southwestern Medical Association and was one of its organizers. He was a charter member of the Fellow American College of Surgeons. For 25 years he was Arizona's chairman of the organization's Credentials Committee. He was also a member of the 50 Year Club.

Probably one of the biggest years for Dr. Bacon was 1912. That year Arizona became a state and he became the President of the Arizona Medical Association. That year the Arizona Medical Association started publication of a medical journel entitled *Arizona Medical Journal.* That year he started using spinal anaesthesia.

In 1940 Doctor retired from Miami's Inspiration Hospital at 71 years of age and moved to San Marino, California. For several years he served in an advisory capacity at the Huntington Memorial Hospital in Pasadena.

In 1949 Doctor moved to Pomona and lived with his daughter and son-in-law, Mr. and Mrs. Maurice O'Connor and their daughter, Ann. He is also survived by a son, John E. Bacon, Jr., and two grandsons, John and Robert of San Mateo, California.

In 1962 on his 93rd birthday Dr. Bacon was awarded a certificate from the School of Medicine of the University of Pennsylvania as a "Distinguished Senior Alumnus." The certificate reads:

"In commendation for the many years of skilled and dedicated service he (Dr. Bacon) has given to humanity and his profession.

"In acknowledgement of the esteem in which he is held by his colleagues and associates.

"In gratitude for the contribution he has made toward advancing the prestige of his alma mater, historically distinguished as the nation's first school of medicine, professionally distinguished by its hreitage of outstanding alumni."

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MEXICO MARKS CENTURY OF MEDICINE

At centennial congress, MDs review progress tailored to fit nation's special health problems

NO doctor has been lynched in Mexico for 25 years.

During the late 1930's, when the Mexican government began sending young physicians into remote jungle and mountain areas, it was almost commonplace for them to be mobbed, stoned, and even literally crucified by superstitious Indian villagers, usually at the instigation of local *curanderos* (witch doctors).

The contrast today is striking. Early this month, a week-long congress in Mexico City celebrated the 100th anniversary of the Mexican Asademy of Medicine, now headed by famed cardiologist Demetrio Sodi Pallares. As the congress met, assembled Mexican doctors could point with pride to truly vast accomplishments.

In a nation that less than 40 years ago emerged from centuries of war, revolution, poverty, and abysmal ignorance, they have established a broad system of quality medical care. A host of endemic and epidemic diseases have been brought under control. Illiterate peasants and jungle Indians have been taught basic sanitation, nutrition, and public-health measures. And Mexico's medical schools, clinical practice, and research serve as a model for all of Latin America and other developing areas.

When the Academy of Medicine was first formed on April 19, 1864, its organizers consisted of ten Mexican physicians and seven foreigners. The proportion was representative. Then, and for many years to come, there were nearly as many foreign doctors in the country as native-born ones—and the majority of the native MDs were educated abroad.

Today, Mexico has 28,000 physicians, one third of all the doctors in Latin America. With a population of 38 million, it has the highest doctor-patient ratio of any country south of the Rio Grande. And, with few exceptions, Mexico's doctors are native-born and native-educated.

The medical schooling and conditions of practice offer some interesting comparisons with the U.S. For instance, there are no private medical schools in the country. But the student seeking an M.D. degree can choose from among public medical colleges in 19 of the republic's 29 states. The oldest of these is in Mérida, Yucatán, and dates back to 1838. The newest, in Torreón, Coahuila, is barely three years old.

Curriculum Is Hemisphere Model

All 18 schools follow a standard curriculum, based on that of the University of Monterrey. This pilot college, which is the seat of the Mexican and Latin American Associations of Medical Faculties, also sets the pattern for all medical schools in the Wesetern Hemisphere outside the U.S. and Canada.

Students entering a medical college must have completed three years of pre-med studies. The professional curriculum lasts five years, followed by a year of interneship, usually at the university hospital. To assure continuity, heads of departments at the medical schools also act as chiefs of the respective services in the attached hospital.

The cost of a medical education in Mexico is estimated at about $4,000. Of this, the state government contributes an average of 80%, depending on the student's scholastic qualifications and financial means.

But the state exacts a return for its subsidy. The Mexican medical student does not receive his M.D. on graduation, or even after his internship. Before becoming a licensed physican, he must serve six months, with only token payment, as a member of a *Servicio Social* health team, assigned to provide free medical care and health education in one of the country's rural or suburban districts.

IN many ways, the *Servicio Social* system is the keystone of Mexican medicine, according to Dr. Rubén Mangas, a gerontologist on the staff of the Federal Health and Welfare Department. "The *Servicio* provides medical care for the large proportion of Mexicans who are unsalaried and not covered by health insurance," he says. "At the same time, it gives our young doctors first-hand experience with the nation's health needs, and forges their professional orientation.

"We graduate 1,200 new doctors every year. What they will do with their knowledge is largely determiend by their apprenticeship in the *Servicio Social.*"

Most fledgling doctors are assigned to medical brigadas in remote jungle, mountain, or desert areas. In addition to the physician-in-training, each brigada consists of an experienced doctor,

a hygienist, and four nurses. The team is generally based in a rural clinic, containing a simple surgery, three beds, a pharmacy, and facilities for a mothers' club, where maternity and child care are taught.

BUT the bulk of a *brigada's* operation is in the field. Each team makes regular rounds of its territory, which may include hundreds of square miles, visiting hamlets, villages, and outlying ranchos. Frequently, the *brigada* must travel by jeep, muleback or on foot. In jungle areas, helicopters are used. For isolated villages along the banks of rivers, the rural clinic is installed aboard a boat.

Aside from routine medical problems, the work of the medical teams is complicated by fantastic difficulties in communication. In many outlying regions, few of the local Indians speak Spanish. In the southern state of Oaxaca, for exemple, there are eight distinct Indian languages and no less than 60 dialects.

To overcome this problem, the *Servicio Social* has distributed 20,000 transistor radios in Oaxaca and set up its own radio station. From here, regular programs are broadcast in all the dialects, giving instruction in elementary hygiene (such as the digging of latrines), maternity care, child feeding, water purification, and other basic health measures.

"Thus, when a team arrives on its regular rounds, much of the spakework has been done," Dr. Mangas points out. "The *brigada* can then devote its efforts to practical medical problems."

Thanks to the rural medical brigades, he reports, many long-standing endemic diseases are being brought under control, including malaria, pinta, and histoplasmosis. Infant and childbirth mortality have been substantially decreased.

When a doctor receives his M.D. after his stint with the *brigadas*, he may elect to go into private practice or become a contract physician with the *Seguro Social* (Social Security), Mexico's socialized health-insurance program. Many doctors combine the two. But few physicians choose to set up shop entirely on their own.

There are several reasons for this, according to Dr. Mangas. "In the first place, comparatively few Mexicans ean afford a private doctor. Secondly, modern medicine requires complex hospital and laboratory facilities and ready specialty consultation, which the young Mexican physician finds most available in the *Seguro Social.*

"Finally, we have found that the vast majority of our young doctors are imbued with a kind of mystique, a fervor to serve the health needs of the nation, which they have seen at first-hand in their *brigada* service. They find that they can satisfy this urge best by working with the *Seguro.*"

The Social Security system covers all salaried workers in Mexico. For complete medical and hospital insurance, they pay up to 8% of their income, which is matched by similar amounts from employers and the government. Contract physicians are paid on a fixed schedule according to the number of hours they work, beginning at $144 a month for two hours a day. The average doctor who works a full schedule for the *Seguro Social* earns about $4,500 a year. Dr. Mangas points out that, with the average Mexican earning about $750 a year, physicians' earnings are roughly proportional to those in the U.S.

'Wetback' Doctors Decrease

Not all Mexican physicians are satisfied with their lot. About 2,000 graduates of Mexico's medical schools are practicing in the U.S., many of them with firms such as railroads, which employ large numbers of Spanish-speaking workers.

But, according to Dr. Mangas, there has been a steady decrease in the number of these *medicos brazeros* ("wetback" doctors). As the quality and the rewards of Mexican medicine improve, the vast majority are electing to stay at home in general practice or, more often, to specialize.

How does Mexico respond to its new doctors today? Dr. Mangas gives an illustration:

IN 1938, when the rural *Servicio Social* system was first inaugurated, he himself was driven by a stone-throwing mob out of an Indian village in the northern state of Nuevo Leon. Four years ago, in the same region, a group of ranchers and their workers built, of their own volition and with their own funds, the buildings to house 25 new rural clinics. They also donated $20,000 to help purchase equipment for the clinics.

"Where one we were greeted with stones, we are now met with *pesos,*" says Dr. Mangas. "The people have learned, and the doctors have learned. With their devotion, their dedication, and their sincerity, our physicians honor Mexico. And the nation, in turn, honors its medical profession."

'BLUE SHIELD ONLY ANSWER'

New President Challenges Federal Programs

The head of the Arizona Blue Shield flung a challenge yesterday to socialized medicine with the declaration that Blue Shield-Blue Cross "is the only substantial answer to the many projected federal programs that have come and gone."

Dr. Charles E. Van Epps, new president of Blue Shield, expressed his views in an interview.

Blue Shield provides non-profit prepayment of physicians' services and is the working partner of Blue Cross, which prepays hospital expenses.

"Frankly," Dr. Van Epps said, "we look forward to an expanding membership, what with the extension of many of our coverages, not only for physician services but also for those hospital services provided by Blue Cross.

". . . It will come because American enterprise thrives on competition.

"And Blue Shield, as well as Blue Cross, has reached a point where it will be more flexible than it has been since early days, from the standpoint of benefits and costs.

"Nonprofit prepayment has now had 35 years' experience, and originally and still today it is the only substantial answer to the many projected federal programs that have come and gone.

"For this reason, I have complete confidence in the ability of Blue Shield to answer any challenge successfully."

He cited these statistics:

Blue Shield, with 53 million members, is by far the largest medical-surgical plan in the world.

In 1963, 2 million joined Blue Shield.

More than $1 million in benefits were provided members last year.

More than 340,000 companies have Blue Shield employe programs.

Four million senior citizens are enrolled in Blue Shield.

In Arizona last year, Blue Shield income was the highest in the history of the Arizona plan, reaching $5,571,885, Dr. Van Epps reported.

"In turn, we expended $5,370,000 for the care of Blue Shield members, another high in this state," he said.

"Our operating expenses within Blue Shield at the same time hit a new low of 8.8 per cent, which means that out of every dollar we took into the plan, 8.8 cents was used to provide for all our expenses."

Dr. Van Epps expressed pride in the medical profession's answer to public concern with financing of medical care as carried out in Blue Shield.

This was, he said, "a dramatic, positive answer and possible in large measure by the personal support of tens of thousands of individual doctors serving as participating physcians and as Blue Shield trustees.

"Right from the start, doctors have actively supported Blue Shield. In fact, it was this recognition of the people's desire and need for a way to meet health-care expense that led the medical profession to organize and sponsor Blue Shield years ago.

"At that time, few others offered a solution or even saw the need.

"Today, doctor support continues to make Blue Shield unique. Every Blue Shield plan in the country is officially sponsored by doctors through their local medical societies."

Dr. Van Epps is 12th president of the Arizona Blue Shield. He has served as chief of the obstetrics and gynecology staff at St. Josephs and Good Samaritan hospitals and as instructor in obstetrics at the Good Samaritan Hospital School of Nursing.

A captain in the army during World War II, he was a surgeon attached to the 511th Parachute Regiment from 1942 to 1945. He was awarded the Bronze and Silver stars and the Purple Heart.

TRENDS IN FINANCING MEDICAL EDUCATION 1941 TO 1962

Trends in Financing Medical Education is a continuing study being conducted by the Division of Operational Studies. It is concerned with the expenditures by sources of income and by type of school for a representative sample of U.S. medical schools.† The study represents an effort to develop an understanding of trends in the amounts and relative importance of the various sources of medical school income as they have changed over the past two decades (see also

Expenditures From Funds Available for Basic Operations by Source of Income and by Type of School of 26 Private and 16 Public Schools for the Years 1940-41, 1947-48, 1959-60 and 1961-62

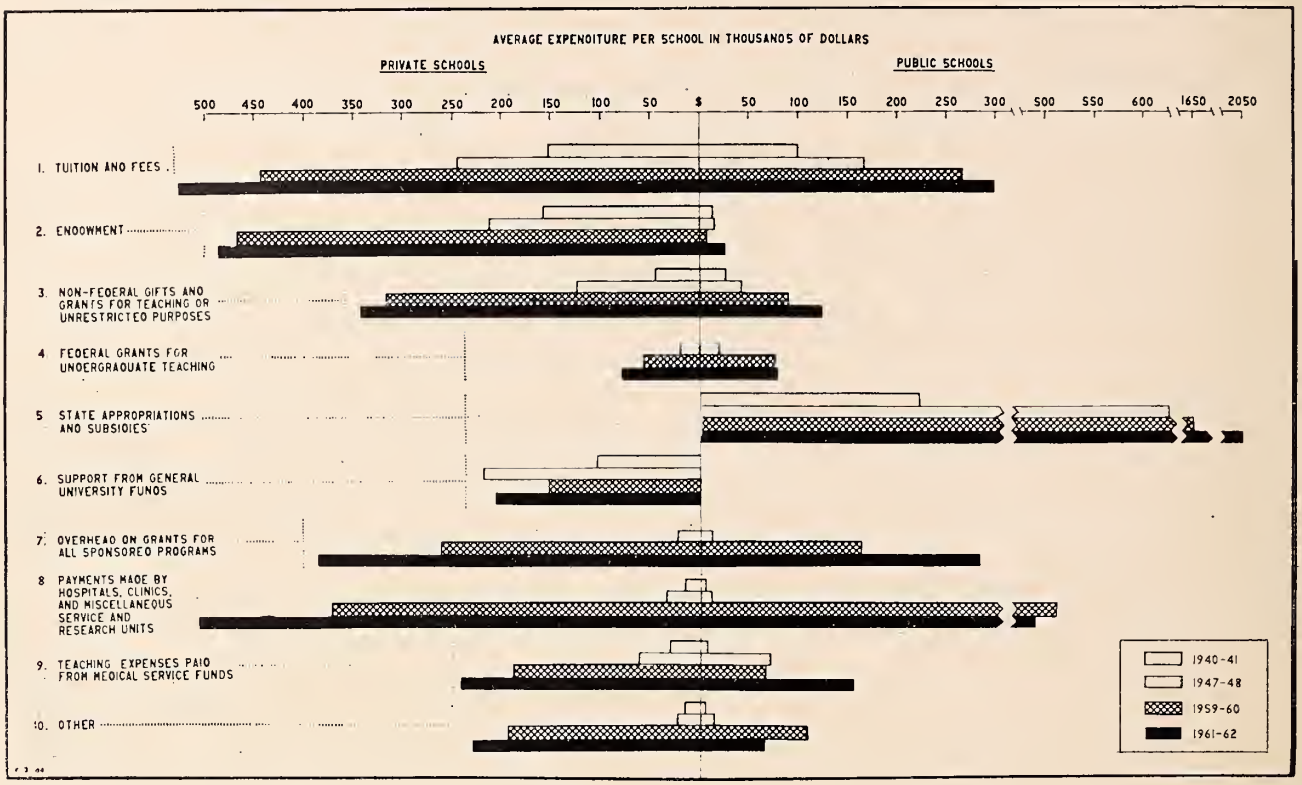


Figure 1

"Datagrams," Vol. 5, No. 10, April 1964), and to suggest the need for strengthening diversification in the financial support of this nation's schools of medicine.

Medical school expenditures can be divided into three main categories: (1) funds available for basic operations, (2) funds designated for research training, and (3) funds designated for research itself. This presentation deals only with funds in the first category, i.e., those for basic operations. Such funds represent money over which the medical school has complete control, or which, while they may be designated for specific purposes, can be used in a manner that is consistent with the school's basic responsibilities and which, as a consequence, free undesignated funds for other purposes.

The purpose of this datagram is to expand a previous publication in the trend series so as to include the most recent medical school financial information, i.e., that for the academic year 1951-62.†

Figures 1 and 2 show how ten categories of income have varied as sources of expenditure for basic operations for the selected years 1940-41, 1947-48, 1959-60, and 1961-62 according to average dollar amounts and as percentages of total expenditures, respectively.

Space limitations here preclude a detailed analysis of these data and their implications. However, in general it can be said that the additional information for 1962 confirms the previous trends with respect to average dollar expenditures per school, the notable exception being "support from general university funds" which in 1960 showed a temporary reversal in the trend.

Percentagewise the data reveal some interesting developments. "Tuition and fees," "endowment," "university funds," and "state appropriations" – still primary sources of support for basic operations – have decreased in relative importance over the years. At the same time a trend has developed toward greater reliance, relatively speaking, on "overhead for grants," "payments made by hospitals, clinics and miscellaneous service and research units." The same is true to some extent for "teaching expenses paid from medical service funds."

Submitted by the Division of Operational Studies of the AAMC. Source of information will be furnished upon request.

†For a previous discussion of the subject see "Datagrams" Vol. 4, No. 9, March 1963 which contains a description of the sample and an explanation of the methodolgy.

PERCENTAGE DISTRIBUTION OF EXPENDITURES FOR BASIC OPERATIONS BY SOURCE OF INCOME AND BY TYPE OF SCHOOL OF 26 PRIVATE AND 16 PUBLIC SCHOOLS FOR THE YEARS 1940-41, 1947-48, 1959-60 AND 1961-62

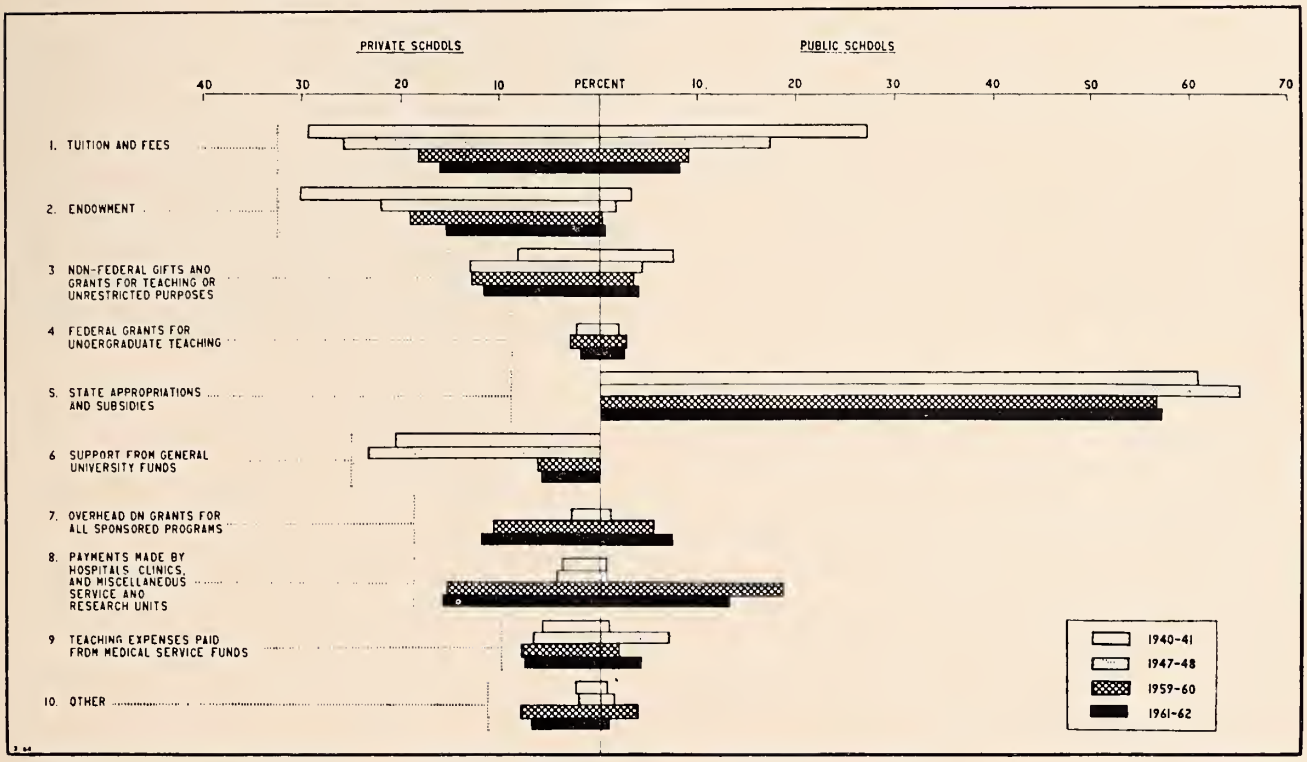


FIGURE 2

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The American Pharmaceutical Association announced today the availability of kits of hazardous substance warning labels for distribution to the general public. Originally conceived and designed by the Michigan State Pharmaceutical Association earlier this year, the distinctive red and yellow labels feature a striking snake design over the words, "WARNING — Keep out of reach of children."

Sheets of ten labels of varying sizes will be distributed through pharmacies across the nation. Accompanying instructions explain that the labels should be placed on containers of many household products including drugs, which could be harmful if improperly used. Pharmacies having the labels available can be identified by a distinctive red, yellow and black window poster stating, "POISON PROOF YOUR HOME NOW," which comes in the new kit.

Additional information and supplies of these labels can be obtained from the Division of Communications, American Pharmaceutical Association, 2215 Constitution Avenue, N.W., Washington, D.C. 20037



IN ERRATUM

Miss Helen E. Watkins of the Arizona Tuberculosis and Health Association has called our attention to an error on page 549, Volume 21, No. 8, in which we credit the first clinical and X-ray laboratory in Phoenix to Dr. W. W. Watson. As we all know, this should have been credited to Dr. W. W. Watkins, who was also Medical Director of St. Luke's Hospital.



DOCTOR LINDSAY E. BEATON ELECTED PRESIDENT

During the annual meeting of the American Medical Association in San Francisco, Doctor Lindsay E. Beaton was named to serve as President of the Aces and Deuces Organization for the coming year.

The Aces and Deuces is a social organization composed of Delegates, Alternates and Executive Secretaries of State Medical Associations, which are represented by one or two persons in the House of Delegates of the American Medical Association.

Doctor Beaton is shown accepting this appointment with Dr. and Mrs. Edward R. Annis.

A NEW FIRST IN THE TREATMENT OF THE MENTALLY ILL IN ARIZONA

Camelback Hospital signs Blue Cross Contract:

Arizona Blue Cross/Blue Shield notified Frank J. Dunning, Administrator, that as of May 18, 1964, Camelback Hospital has been selected a member hospital participating in the Arizona Blue Cross Plan. Any Blue Cross policyholder eligible for coverage for nervous and mental disorders may be cared for at Camelback Hospital under the new contract.

Mr. John Foster, Executive Director of the Blue Cross Program, was most helpful in achieving this tremendous step forward in the fight against mental illness. It is truly a milestone in the history of Arizona to provide adequate total care for the health and welfare of its citizenry.

TWELFTH ANNUAL MEETING ARIZONA ACADEMY OF GENERAL PRACTICE

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September 9 thru 12, 1964
Federation of Anesthesiology Societies of Mexico
Mexico City, Mexico

AMA ANNUAL CONGRESS ON OCCUPATIONAL HEALTH

September 26, 27, 1964
Rice Hotel, Houston, Texas

TENTH ANNUAL FLYING PHYSICIANS ASSOCIATION MEETING

September 27th to October 2nd, 1964
Riviera Hotel, Palm Springs, Calif.
Drs. L. D. Beck and J. S. Carlson are co-chairmen of the Arizona State Chapter

AMA MEETING OF CHAIRMEN OF STATE COMMITTEES ON OCCUPATIONAL HEALTH

September 28, 1964
Rice Hotel, Houston, Texas

POST GRADUATE COURSE IN CARDIOLOGY

"The Heart in the Electronic Age"
December 1 thru 4, 1964
Scripps Clinic and Research Foundation, LaJolla, California

AMA COMMITTEE ON AEROSPACE MEDICINE

September 25, 1964
Rice Hotel, Houston, Texas

AMERICAN COLLEGE OF PHYSICIANS

Fall Meeting October 8-10, 1964
Hotel Biltmore, Los Angeles, Calif.

AMA COUNCIL ON OCCUPATIONAL HEALTH

September 29, 30, 1964
Rice Hotel, Houston, Texas

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DECEMBER 9, 10, 11, 12, 1964

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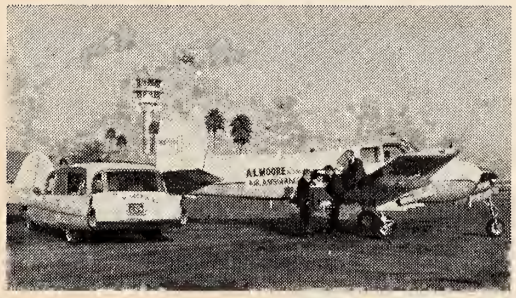
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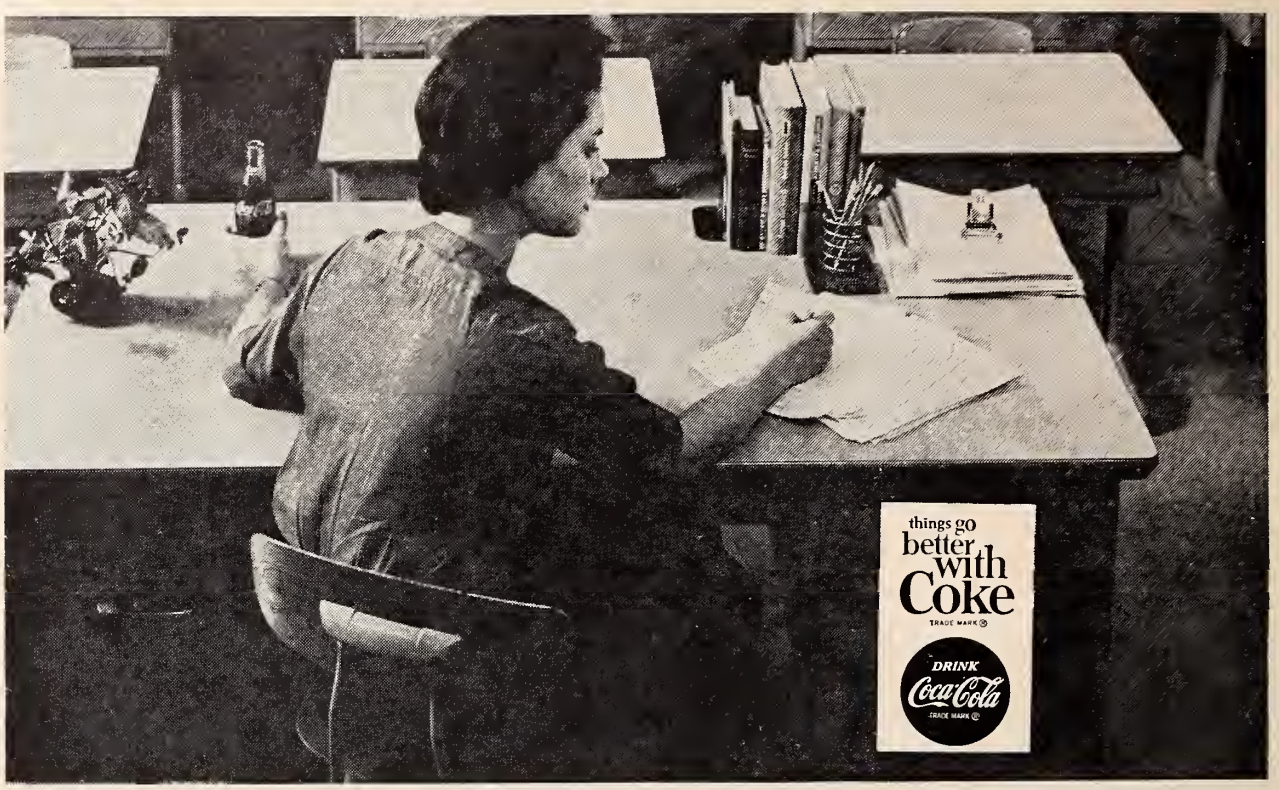
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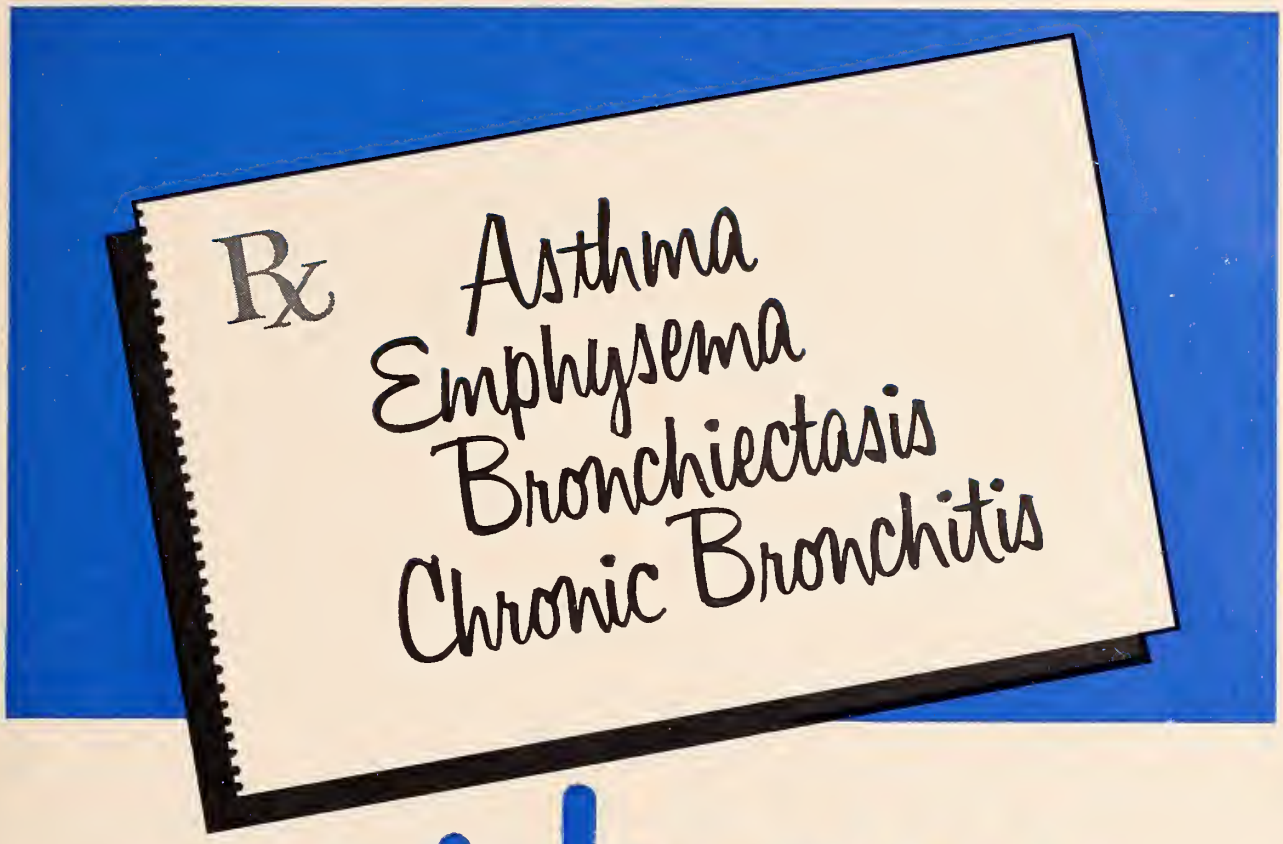
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Complete officer and committee listings will appear in the December issue.

BENEVOLENT AND LOAN FUND COMMITTEE

Meeting of the Benevolent and Loan Fund Committee of The Arizona Medical Association, Inc., held Sunday, July 26, 1964, in the Central Offices of the Association, Suite 211, U-R Building, 4533 North Scottsdale Road, Scottsdale, Arizona, convened at 10:10 a.m., Daniel T. Cloud, Jr., M.D., Chairman, presiding.

ROLL CALL

PRESENT: Dr. Brewer, W. Albert, President; Cloud, Jr., Daniel T., Chairman; Dudley, Jr., Arthur V., Treasurer; Henderson, Charles E., Secretary; O'Hare, James E., President-elect. Messrs. Carpenter, Robert, Executive Secretary; Robinson, Bruce E., Executive Assistant.

GUEST: Mr. Mislicky, Roman G., Director, Professional Services Department, Valley National Bank.

EXCUSED: Drs. Buffmire, Donald K., Neubauer, Darwin W., Ochsner, II, Albert J.

MINUTES

By motion regularly made and unanimously carried, in each instance, the minutes of the meetings of the Benevolent and Loan Fund Committee held January 30, 1963; October 24, 1963 and November 21, 1963 were approved as printed and circulated among the membership.

MEDICAL STUDENT LOAN VNB TRUST PROGRAMS

For the edification of the members of the Committee there was prepared and submitted a status report setting forth the loans granted, separated into the two trust accounts. The initial one reflects a total of seventeen (17) loans granted totaling $34,800.00 with a total of $37,252.09 currently owing, including interest and insurance premium payments.

The current trust account reflects a total of ten (10) loans granted totaling $13,525.00 with a total of $14,962.45 currently owing, including interest and insurance premium payments. In this latter account there is reflected a total repayment of one loan amounting to $1,815.00.

The maximum amount available for loan purposes based upon 65% of the 1964 budget totals $116,142.20. Budgetwise, loans totaling $52,214.54 having been authorized to date there is a balance of $63,927.72 available. Based upon the initial $5,000.00 authorized transferred to the current trust account July 25, 1963, a total sum of $62,500.00 ($12.50 for $1.00) is available for loan purposes.

It was further pointed out that a sum of $3,126.33 had been likewise transferred to the current Valley National Bank Trust Account, July 10, 1964, representing interest earned on Association savings accounts. Discussion ensued. It is the intent that these monies are to be made available for the 'Scholarship" fund. It will be determined whether or not this money shall remain in the trust account or be transferred to a separate savings accounts to accrue for the purpose intended.

It was moved by Dr. Dudley, seconded by Dr. O'Hare and unanimously carried that the remaining excess funds in the intial trust account be transferred to the new-trust account, the amount to be determined by the VNB Trust Department.

For the record it was determined that a medical student loan granted by the Committee will remain open for the school year for which it was granted permitting the student-borrower to draw on such account for the total sum or any portion thereof during such period. At the close of the school year, should additional loans be requested by the student-borrower, reapplication will be required for further committee action.

SCHOLARSHIP APPLICATION

The Chairman presented for discussion the subject of "Scholarships." As authorized by the House of Delegates of the Association, Resolution No. 14 adopted as amended, May 1, 1964, recited as follows:

"WHEREAS, the student loan fund is now fully funded and in operation; and

WHEREAS, principle monies kept on cash reserve of this Association continue to earn interest; and

WHEREAS, as a non-profit organization, we may not refund this interest income to our membership; and

WHEREAS, the earned interest could be turned to very practical uses by medical student grants at no out-of-pocket expense to the Arizona Medical Association; be it therefore

RESOLVED, that each year the Treasurer be directed to credit to the Benevolent and Loan Fund Committee the amount of interest earned the previous calendar year on our savings accounts; and be it further

RESOLVED, that the Benevolent and Loan Fund Committee be directed to institute and proceed with a scholarship grant for any resident of Arizona, graduates of a university or college who are entering an approved Class "A" medical school; this scholarship to amount "to a Five Hundred Dollar scholarship from the Arizona Medical Association; and be it further

RESOLVED, that the Benevolent and Loan Fund Committee draw up a set of rules and regulations for approval by the Board of Directors for awards of these Scholarships."

As clearly set forth in said Resolution, scholarship grants are to be made available to any resident of Arizona, graduate of a university or college who is entering an approved Class "A" medical school, such scholarship to be in the amount of $500.00. "Scholastic achievement" and "need" were considered basic requirements in considering eligibility for a scholarship. Lengthy discussion ensued.

The Committee determined that an applicant for a scholarship most eligible would be one with the highest academic record and the greatest demonstration of need.

The Chairman reviewed for the edification of the Committee members the format of the "Scholarship Application." The proofs are now in the hands of the printer and delivery has been promised momentarily. Considerable discussion ensued and expressions solicited appear to indicate in the minds of several members that the Confidential Financial Statement, Form III,

Pages 3 and 4, appears too severe, at least to the extent of requiring revelation of Federal income tax payments by the family, etc. It was determined that the Chairman review the printed form when delivered and delete portions not considered essential in the evaluation of need for scholarship grants.

STUDENT LOAN AND SCHOLARSHIP PROGRAMS

The Chairman presented the subject of publicity associate with the student loan and scholarship programs. It is considered essential that effort be made to appropriately publicize these programs. The media of Arizona newspapers is one suggestion. It was suggested that the Chairman confer with Mr. Julian DeVries, Editorial Writer for Phoenix Newspapers, Inc., in the hope that an appropriate article might be prepared, subject to editing, which would fully present these programs for edification of the public and especially those students who might be inclined to pursue a medical education and are in need of financial assistance. This article then could be distributed among the Arizona newspapers and others interested therein as a newsworthy item. Mr. Mislicky indicated that the Banking Journal would be more than happy to reproduce such an article. Undoubtedly there will be other publications which may express interest. It was further thought wisdom that the Congressmen of the United States might find the article of interest and certainly the State universities should be informed and have full knowledge of the available programs. The assistance of the Central Office is, of course, available to provide whatever statistical data might be desirable.

OTHER BUSINESS

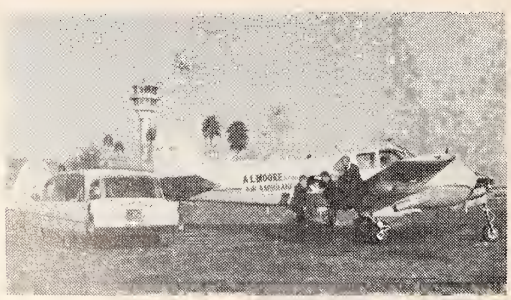
Interns and Residents

It was moved by Dr. Brewer, seconded by Dr. Dudley and unanimously carried that the stated policy of the Benevolent and Loan Fund Committee be amended thusly: that an intern or resident may be considered for a loan under the Benevolent and Loan Fund (medical student loan) program under extreme extenuating circumstances.

MEETING ADJOURNED AT 12:25 P.M.

Charles E. Henderson, M.D.
Secretary

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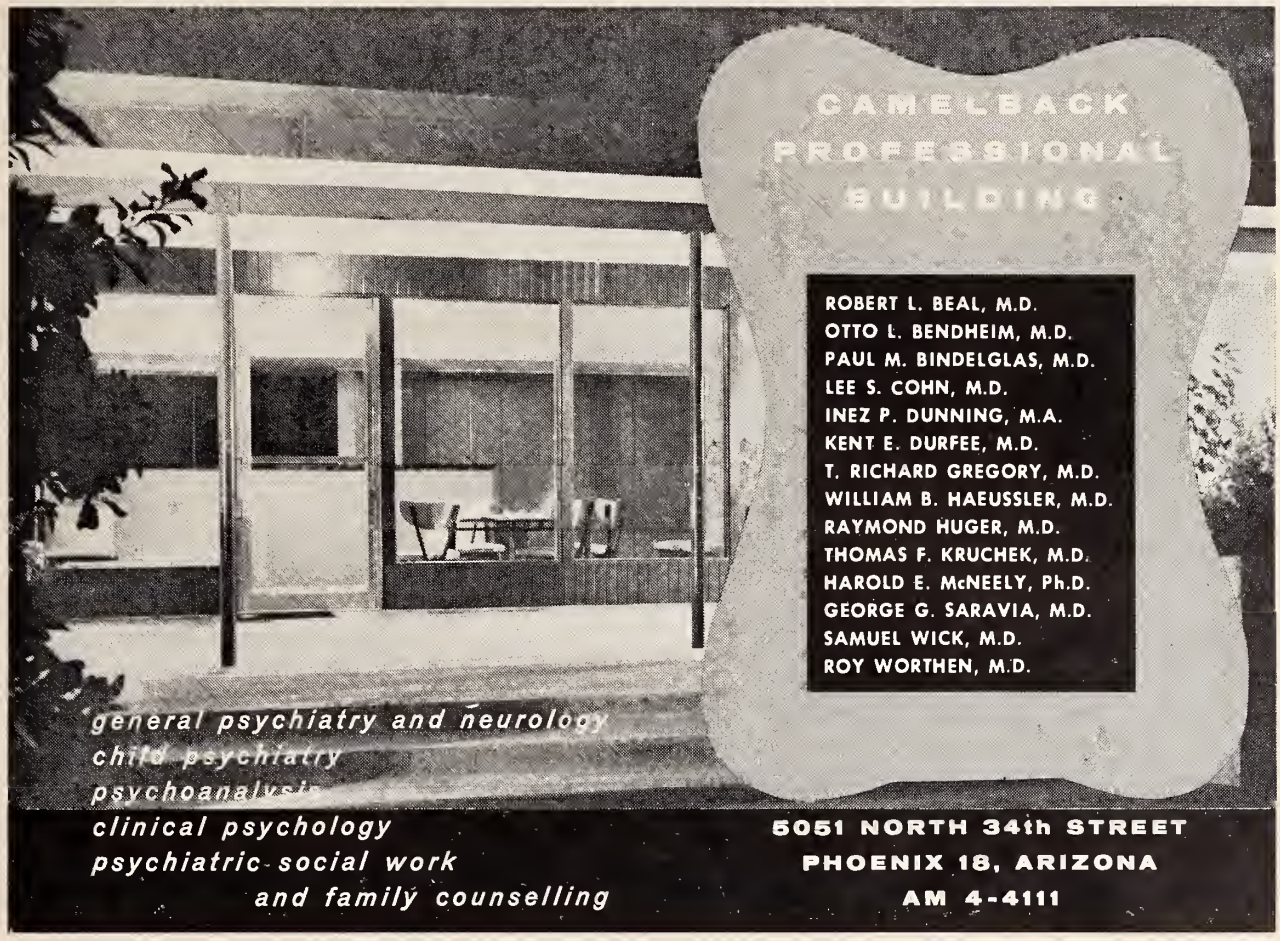
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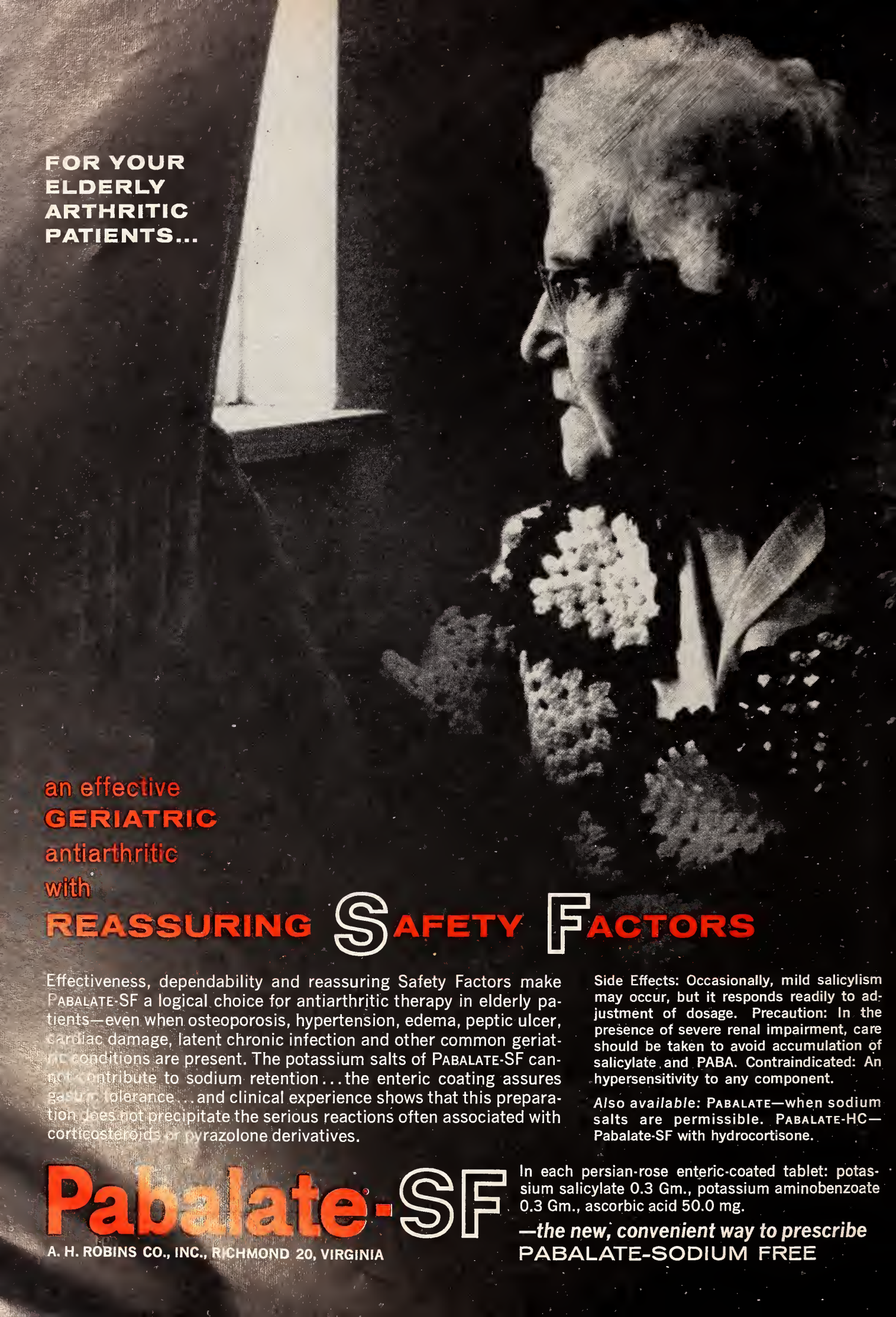
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or contact your nearest office manager and arrange for an appointment.



In checking through the Master File of *Arizona Medicine* issues your Managing Editor finds that we are missing some of the earlier issues, which are listed below. If you have copies of these and would be willing to contribute them so that we will have a complete file of all issues of *Arizona Medicine*, it would be sincerely appreciated. We will be glad to pick them up in the Phoenix and Scottsdale area or you may mail them to *Arizona Medicine*, P. O. Box 128, Scottsdale, Arizona.

Volume Number	Issue Number	Month	Year
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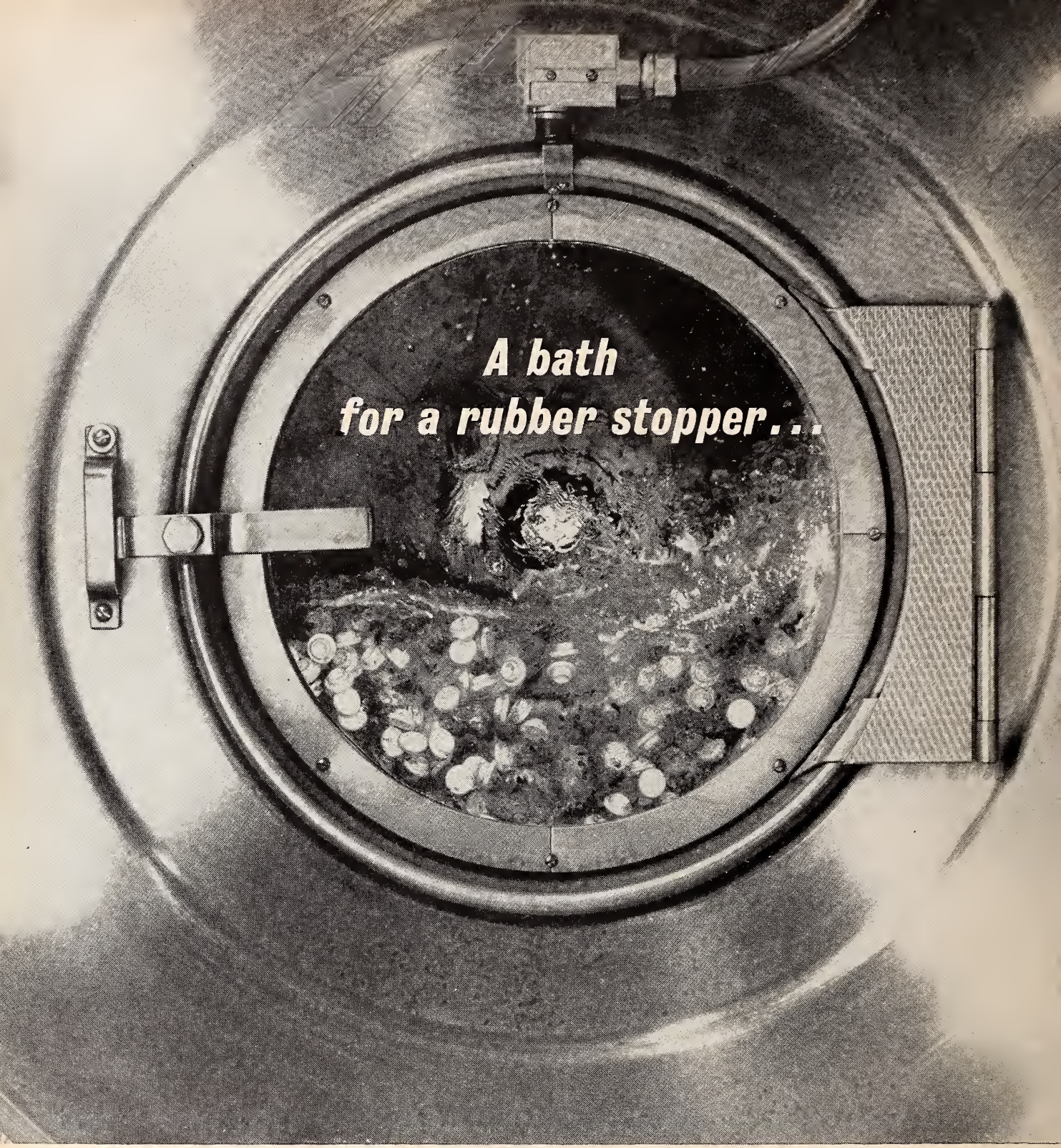
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Dr. Beers

Hypoglycemia Following Accidental Ingestion of Tolbutamide

by
Robert G. Beers, M.D.

In contrast to insulin, hypoglycemia due to Tolbutamide is rare. Reported here, is an instance of hypoglycemia occurring in a 72 year old patient following the accidental ingestion of 2 gms. of Tolbutamide. The chemistry and mechanism of action of Tolbutamide are discussed.

DESPITE the fact that Tolbutamide has been used widely since 1955, the incidence of hypoglycemia has been extremely low.[1,2,3] Marble and co-workers in reporting side effects in over twenty-five hundred diabetics listed only one instance of hypoglycemia.[4] Other series have confirmed this report.[5,6,7] By its action of releasing insulin from the beta cells of an already compromised pancreas,[8] it is reasonable to assume that the total amount of insulin available in diabetics is relatively diminished and that the problem of hypoglycemia will be minimal. However, the use of Tolbutamide has also been reported in the treatment of multiple sclerosis[9], paralysis agitans[10], acne, staphyloderma[31], agina pectoris[12], peripheral arteriosclerosis, and thromboangiitis obliterans[13]. In these cases, theoretically, the pancreatic response should be normal, and the incidence of hypoglycemia should be very high. Again the paucity of reports indicates the wide range of safety lies in its use in non-diabetics. Except in isolated cases of Parkinson's disease[14], there have been virtually no reports, thus giving credence to the theory that an abnormal mechanism is responsible in the rare case of hypoglycemia rather than overaction of the normal pharmacologic properties of the drug[15]. The unusual circumstances surrounding the hypoglycemic episode in an elderly non-diabetic make this case unusual enough to report.

A seventy-two year old woman was seen September 29, 1962, as a medical emergency because of weakness and mental confusion. She became gregarious, loud, and developed slurred speech which progressed rapidly to unconsciousness. Her health had been excellent during the preceding twenty-four hours. She had taught Sunday school and had then gone to her friends' house for lunch. At approximately four p.m. there was a definite personality change. Her reasoning became clouded, the speech was slurred and abusive, and about thirty minutes after onset she lapsed into unconsciousness. There was no loss of bowel or bladder control, no seizures, chest pain or palpitation. There was no history of nausea, nocturia or polydipsia. Her weight had been constant. Back pain from osteoarthritis had been a problem over the previous five years for which she took six to ten aspirin per twenty-four hours.

Her habits had always been temperate, the patient neither smoked nor drank. Her only medications besides aspirin were vitamins and Diuril (500 mgs.) once daily for a mild hypertension. In the past, her health had been good. Scarlet fever complicated by pneumonia at age thirteen, and a radical mastectomy in 1940 followed by x-ray therapy with no apparent recurrence were the only positive findings. The father died at age seventy-seven of carcinoma of the bladder, and the mother at age fifty-four of a cerebral hemorrhage, having been a mild dia-

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betic prior to death. The patient has two children living and well.

PHYSICAL examination was that of an elderly, pale, unconscious white female; height 63½ inches, weight 141 pounds. Blood pressures of 150/90, right arm, and 170/90, left arm, were recorded. Vital signs included respirations 20, pulse 84, rectal temperature 99.0 degrees. The pupils were normal, equal and reacted poorly to light. The ocular fundi were visualized with difficulty but no hemorrhages or exudates were seen. The eyes moved in a haphazard manner. Examination of the skull, nose, ears and throat added nothing of significance. There was no evidence of injury or bleeding from the ears. The neck was supple. There was a radical mastectomy scar on the left side with no masses or palpable nodes. The rib cage expanded approximately one inch and vesicular breath sounds were audible in all portions with neither dullness nor hyperresonance. The heart rate was 84, rhythm regular, with first and second heart sounds distinct. The apex beat could be palpated in the fifth left intercostal space nine cms. from the midline. The area of cardiac dullness was not increased and no murmurs were present. Examination of the kidneys, liver and spleen was normal with no tenderness or rigidity in the abdomen. Slightly hypoactive bowel sounds were present. Deep tendon reflexes were diminished but equal and the Babinski sign was absent. She did not respond to painful stimuli.

The laboratory finding were as follows: Red blood count 4.2 million, hemoglobin 13.1 grams, hematocrit 40 mm., white blood count 13,000 with 72 segs., 5 stabs., 17 lymphocytes and 6 monocytes. Urinalysis revealed a specific gravity of 1.012, albumi, glucose and acetone absent, and the microscopic was negative. Blood sugar was 40 milligrams per cent, uric acid 5.7 milligrams per cent. Spinal fluid, initial pressure, was 95 mm. of water with manometrics normal. Protein 37 milligrams per cent, sugar 35 milligrams per cent, no cells. VDRL and colloidal gold curves were normal. The prothrombin time was 13 seconds (60 per cent activity) with a twelve-second control.

TESTS done over the subsequent days of hospitalization included a normal chest x-ray, negative upper GI series, negative latex fixation for rheumatoid arthritis, and cholesterol of 288 milligram per cent. Smears of the cervix were reported as Class I negative. X-rays of the hips revealed advanced degenerative changes. The electrocardiogram was normal. A five-hour glucose tolerance test done several days after onset of the present illness was as follows: 105 milligrams per cent (fasting), 143 milligrams per cent (one hour), 110 milligrams per cent (two hours), 74 milligrams per cent (three hours), 87 milligrams per cent (four hours), and 85 milligrams per cent (five hours).

Hospital Course: After a preliminary examination at home, the patient was transferred directly to the emergency room with a tentative diagnosis of basilar artery thrombosis. A urinary catheter was inserted and a negative urine obtained. A lumbar puncture was performed and 10 per cent dextrose in water intravenously was begun as supportive therapy. The etiologic concepts of the disorder changed radically when the spinal fluid sugar was reported as 35 milligrams per cent and the blood sugar 40 milligrams per cent. She was then given 100 cc. of 50 per cent glucose intravenously with a gradual return to consciousness. Aside from generalized weakness, the patient had returned to her usual state of health by morning. It was then discovered that she had taken four of her husband's 0.5 Gm. Tolbutamide tablets by mistake during the night prior to the onset of symptoms, believing them to be aspirin.

Discussion

The action of Tolbutamide has been studied extensively. Its site primarily, if not solely, is in the pancreas with release of insulin from the beta cells.[16,17,18,19] In a beautiful study by Lacy[20], using electron microscopic technique, he reported the following sequence of events. Ergastoplasm is transformed to a vesicular form thus allowing beta granules to form within the ergastoplasmic sacs. The granules with their encasing sacs move to the surface of the cell where they are liberated by eminocytosis. Once in the extra cellular space, the granules undergo dissolution and insulin is released into the blood stream. Other theories of Tolbutamide action, such as increased peripheral utilization of glucose[21], increased storage of glycogen by the liver[22], and the release of protein bound insulin[23], play a minor and decreasingly significant role in the theories of action.

Chemically, Tolbutamide is closely related to the sulfanilamide derivatives, differing in that an amino group is present in the para-position. This

makes it devoid of antibacterial action and prevents its acetylation (the usual method of sulfa degradation) in the body. The p-methyl group, which is present in place of the amino group, is carboxylated to COOH, producing a metabolically ineffective compound which is the excreted in the urine[24]. It is estimated that the effective biologic half-life of Tolbutamide is between three and five hours[15]. The efficiency of the carboxylation was extensively tested by Forist and Chuliski[25] who concluded that "the oxidation of Orinase to its carboxyl derivative is a most efficient process."

In the patient reported, the delay in onset of action and the prolonged hypoglycemic periods reported elsewhere[14] can best be explained by either failure of normal absorption from the gastrointestinal tract or by failure of the carboxylation process. The onset of symptoms approximately fifteen hours after ingestion of the drug and three hours after a meal make the second hypothesis the most attractive.

OTHER causes of hypoglycemia were not seriously considered. Fibrogenic tumor, adrenal disease and liver disease seemed unlikely in view of the history and physical findings. Pancreatic disease and, in particular, an insulin-producing tumor were discounted by the normal glucose tolerance test and the normal upper GI series. The factitious administration of insulin and functional hypoglycemia were possibilities invalidated by the subsequent excellent health. The increased sensitivity of older people to Tolbutamide[26] was substantiated by this case.

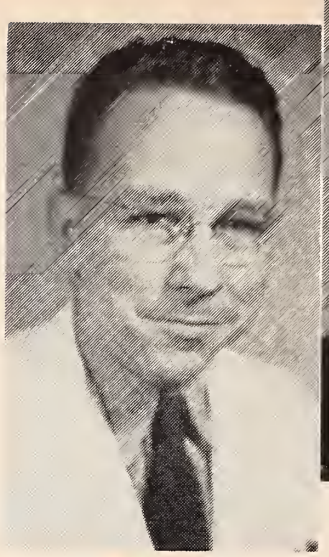
In summary, a case of hypoglycemia following accidental ingestion of Tolbutamide has been presented. The chemistry and mechanism of action were discussed in relation to a possible breakdown of the carboxylation system. The age of the patient, severity of the reaction in relation to the dose, and the delay in onset of symptoms have made this case unusual enough to report.

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PHARMACY OWNERSHIP BLACK OR LIGHT GRAY?

To the best of our knowledge, Hippocrates never commented on the physician who owns a pharmacy. This is too bad because the pot keeps boiling and a few words, dating back to a senior statesman, might help. . . . We're not in favor of physicians owning drug stores. In fact, we think that any physician who owns such an establishment may be asking for undeserved abuse. But at the same time, we're not against owning private property. Our gripe, if we may call it that, is with those who sneak around and try to paint something black that is, at worst, only light gray.—Editorial, *GP*, 29:6 (June) 1964.



Dr. Fredell



Dr. Kazan



Dr. Washburn

An Injury Profile Study

The Building of a Large Dam in Arizona; Initial Report

by
C. Herbert Fredell, M.D., F.A.C.S.
Ivan W. Kazan, M.D.
J. Ballard Washburn, M.D.

This paper has a very brief background of the building of the Glen Canyon Dam and a description of the manner in which it was done. The paper then goes on with a description of the summary of the types of injuries that were treated and the accident frequency in building this dam in comparison with other dams. It has a description of the severe injuries which resulted in the death of fifteen workmen. A general description of some of the results and outcome of the treatment is included.

SOME of man's prominent achievements in the never ending battle to tame nature's resources have been the building of dams and bridges across rivers. As more knowledge and ability have accumulated, more ambitious and extensive construction projects have been undertaken. Such a project is the Glen Canyon Dam.

Approximately ten miles from the Utah-Arizona border in the wild, rocky, gorge-filled portion of northern Arizona on the Colorado River, a dam was started in 1956. It was to rival Hoover Dam in volume of concrete and in height, when completed in 1963. Prior to the completion of the dam, a single span of steel arch bridge was built across the 700 foot deep gorge and the town of Page, Arizona, came into being.

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It was within this setting that our study was done. The early problems of the sources of the labor supply and the wide variety of jobs made the workman's safety difficult. Prior to the undertaking of the project, estimates were made concerning the probable death, accident and disability rates. After a lapse of almost seven years, it can be stated with justifiable pride that the estimators were very wrong and that the safety departments of the various contractors and the U. S. Bureau of Reclamation had done their job well.

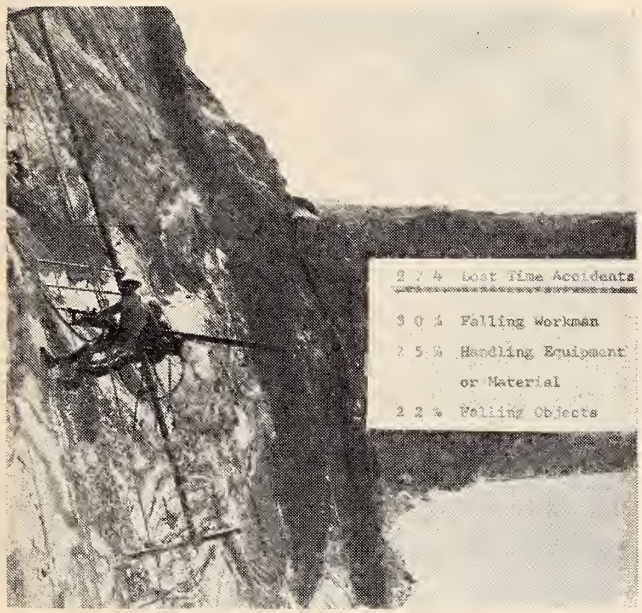
The project progressed through various phases of work which presented their own particular job hazards and injuries.

In 1956 the project was begun by the miners who started the rock tunnel construction. Access to the canyon floor for the electrical power plant and diversion of water around the side of the

TABLE I

Causes of 274 Lost-Time Accidents By 9 Dam Site

Falls of Persons	82
Falling Objects	62
Handling Material or Equipment	70
Vehicles	13
Flying Particles	12
Non-Classified	8
Striking against Material	6
Explosions	4
Jumping to or From Places	4
Machinery	4
Electricity	3
Flash Burns	2
Railroads	1
Elevators	1
Dust - Chemicals - Gases	1
Hand Tools	1



dam construction were required. During 1957 the tunnel construction was carried to completion and the bridge was begun. During 1958 the dam keeways were excavated from the rocky canyon walls and the water was diverted into the two tunnels from the river bed.

Excavation of the river bed down to solid rock foundation with the first placement of concrete was done in 1960. The bridge had been completed the previous year. The aggregate and batch plant began operating in 1960 and has continued until the present, with work emphasis mainly on placement of concrete. Construction of the electrical power house on the canyon floor below the dam has continued from 1961 and will continue until 1966 when the last generator will be installed. Electrical transmission lines and power stations will continue to be installed during the next three years.

From the foregoing, it is apparent that the workman found possible injury and death in a wide variety of locations. And injuries and deaths did occur in several ways. In an analysis of the 274 documented lost-time accidents that occured on this project up to May 1, 1963, the U. S. Bureau of Reclamation Safety Department found several causes for them.

It is of interest that almost 30% of the accidents were due to the workmen falling; that 25.5% were due to the handling of equipment or material; that 22% were due to falling objects.

The fatal injuries have been analyzed. It is of some interest that the bulk of the fatal injuries were those with instantaneous death due to massive multiple injurics. Two patients died after they had successfully reached the Page Hospital during the period of this study. Both of them had massive injuries which prevented effective surgical therapy. It is of note that there were no deaths from the bridge construction. Of the 15 deaths, eight were due to falling rock and equipment, or of a workman. Four were associated

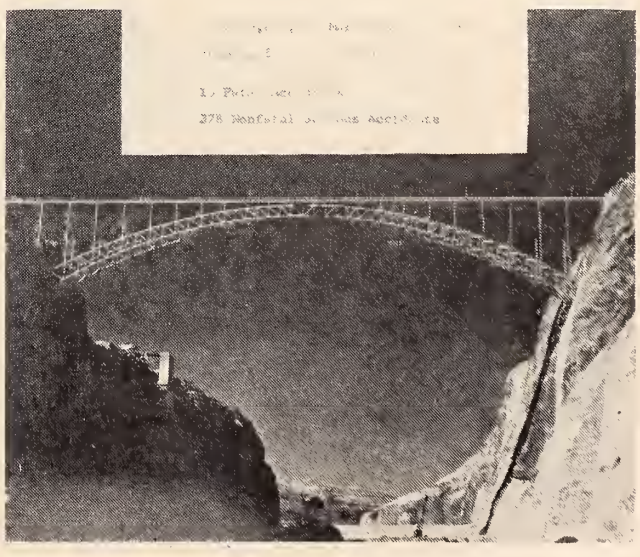
TABLE IA

UNITED STATES BUREAU OF RECLAMATION
ACCIDENT DATA PERTAINING TO THE
BUILDING OF OTHER DAMS.

Project	Man-Hours	Accident Frequency Rate	Fatalities
1. Columbia Basin 1934-1946	26,306,939	65.8	36
2. Shasta Dam 1938-1947	24,822,615	95.1	29
3. Hungry Horse 1946-1953	13,296,335	38.6	20

Accident Frequency Rate — Number of disabling injuries per million man hours of exposure

The Glen Canyon Project has had an accident frequency rate of 18.6 to 17.9 to date in over 18,000,000 man-hours of work



with vehicles and two occurred in a freak accident when a pipe exploded while it was being cut with a torch.

The non-fatal injuries that were severe enough to require hospitalization or loss of time from work have been analyzed. Not all of the patients who were hospitalized were considered as lost-time accidents by the safety department. Hence the discrepency of figures presented and the previously mentioned 274 accidents.

An important factor in the early phase of the project was the lack of hospital facilities at the dam site. Observation of the less severely injured patient was done in the physician's office and in the home of the patient. Many men with minor or less severe injuries were returned to work of light duty status in the first year, who, in later years, would have been observed in the hospital or kept from working. The change in the type of environment also played a role in this shift in the lost-time status of the workman. Once concrete placement had begun, there were ladders to climb and slippery conditions under foot that made the partially injured workman not suited for the job.

Many minor injuries that were cared for in the physician's office and the emergency room of the hospital, with prompt return of the workman to his job, are not considered. There were 378 non-fatal more serious injuries that either required hospitalization or required time lost from the job to treat them. Twenty-six patients were of the latter category.

The commonest injury in this group of patients was a fracture of a bone. A large number of patients had an injury to their back. The type of work could account for this high incidence of back injury.

As one studies the tabulation of injuries, some follow-up information is available. There were 42 head injuries including four severe cerebral contusions. One of these patients is a permanent mental defective. Of the 25 eye injuries, there have been three cases of complete loss of vision and one partial loss of vision. The 25 neck injuries produced two cases of ruptured intervertebral disc. One of them required removal of the disc and fusion of the cervical spine. Among the 93 back injuries, there were 13 cases of herniated lumbar intervertebral disc. Eleven of them required excision. There was one traumatic paraplegia. Permanent disability of a varying degree occured following all of the amputations. The 25 joint injuries produced two shoulder cuff and five knee ligament tears that required repair. Two acute ganglions were excised and one splenectomy was done.

Most of the primary infections were a result of

TABLE II

Causes of 15 Fatal Injuries By A Dam Site

A.M.	26	M	Multiple Injuries	Falling Rock in Canyon
V.S.	37	M	Multiple Injuries	Falling Rock in Tunnel
B.P.	34	M	Multiple Injuries	Falling Rock in Tunnel
E.T.	55	M	Multiple Injuries	Vehicle Collision with Cliff
J.C.	26	M	Crushed Chest	Motor Train Ran over Him
R.F.	38	M	Multiple Injuries	Falling Rock in Canyon
L.H.	40	M	Crushed Skull	Struck by Truck Bed
B.M.	53	M	Suffocation	Covered with Sand and Gravel
V.McN.	39	M	Crushed Skull	Truck Ran Over Him
W.K.	20	M	Hemorrhage from lacerated subclavian vein and superior vena cava	Perforating wound due to Exploding Pipe Fragments
R.W.	38	M	Hemorrhage from Crushed liver, Spleen and great abdominal vessels	Struck by Swinging Cement Bucket
R.G.	46	M	Depressed Skull Fracture	Fell in Canyon
W.C.	36	M	Crushed Chest	Fell in Canyon
A.V.	28	M	Crushed Skull	Equipment Fell on Him
A.K.	35	M	Multiple Penetrating wounds of skull, chest and abdomen	Exploding Pipe Fragments

what was considered at the time to be a minor puncture wound. Most of the burns were due to contact with cement dust. The type of burn was more of an allergic dermatitis that took considerably longer to heal than the usual thermal burn. The four men overcome by ammonia gas did well except for one man who has had dyspnea on exertion.

It is of note that only one man became psychotic under the stresses of the hazardous working conditions. Motivation encouraged by good pay and a certain appreciable turnover in personnel were two important factors in limiting emotional illness to less severe types.

The experience with skeletal injuries has been tabulated. Due to the variety of referral destinations early in the construction, a thorough follow-up has not been possible at this time.

TABLE III

TYPES OF NON-FATAL INJURIES IN 378 PATIENTS BY A DAM SITE – NOVEMBER 1957 to MAY 1963

1. Head Injuries	
Cerebral Concussion	23
Cerebral Contusion	4
Severe Scalp Lacerations	16
2. Eye Injuries	
Conjunctival or Corneal Foreign Body with Conjunctivitis or Iritis	12
Corneal Flash Burns	9
Intraocular Foreign Body	2
Severe Contusion of the Globe	1
Severe Laceration of the Globe	1
Severe Irreparable Trauma of the Globe	1
3. Neck Injuries	
Severe Musculoligamentous Sprain	18
Severe Cervical Contusion	4
Herniated Intervertebral Disc	2
Ruptured Arytnoid Cartilage	1
4. Back Injuries	
Severe Musculoligamentous Sprain	67
Herniated Intervertebral Disc	13
Severe Lumbar Contusion	13
5 Acute Inguinal Hernia	7

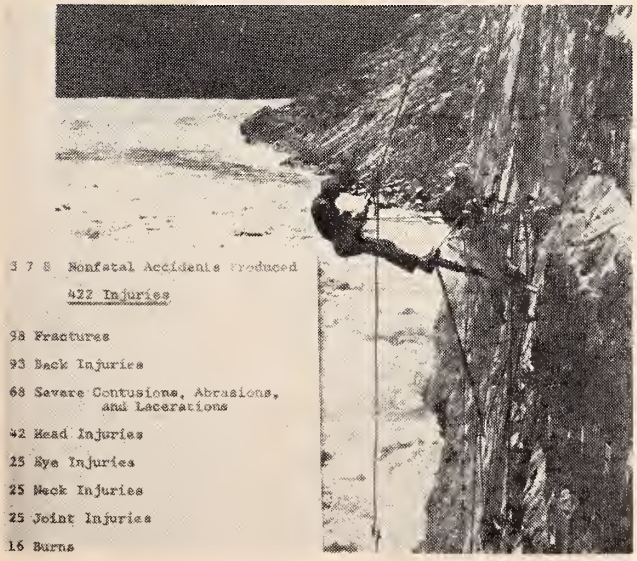


TABLE IV

TYPES OF NON-FATAL INJURIES IN 378 PATIENTS BY A DAM SITE – NOVEMBER 1957 to MAY 1963

6. Visceral Injuries	
Contusion of the Kidney	2
Ruptured Spleen	1
7. Severe Abrasions, Contusions and/or Lacerations	68
8. Joint Injuries	
Ligament Tears	
Ankle	8
Shoulder	3
Knee	7
Cartilage Tears – Knee	5
Acute Ganglion	2
9. Burns	
Chemical	9
Thermal	5
Electrical	2
10. Infections, Primary	9
11. Overcome by Ammonia Gas	4
12. Psychotic	1

The shaft of the tibia was the commonest site of injury seen in this series of 100 fractures. Five were open fractures and six of the thirteen required open reduction. One of the closed fractures had a non-union requiring a bone graft and one of the open fractures had a non-union requiring a bone graft. One case developed osteomyelitis which responded to therapy.

Of the 11 cases of fractured calcaneus, six developed disability that required a subtalar fusion. Both cases of a fractured humerus were open fractures requiring open reduction. One patient has permanent limitation of motion of the elbow.

The remainder of the tabulated fractures were uncomplicated and associated with no known permanent disability.

TABLE V

TYPES OF NON-FATAL INJURIES IN 378 PATIENTS BY A DAM SITE – NOVEMBER 1957 to MAY 1963

13. Fractures	100 Fractures Total	Closed	82 Patients Open	Open Red'n
Upper Extremity				
Scapula	2	2	–	–
Humerus	2	–	2	2
Radius & Ulna	9	7	1	1
Metacarpal	5	5	–	–
Radius	2	2	–	–
Phalanges	5	4	1	1
Trunk				
Vertebra	9	9	–	–
Ribs	9	9	–	–
Coccyx	4	4	–	–
Pelvis	3	3	–	–
Skull	2	2	–	–
Lower Extremity				
Tibia Shaft	13	8	5	8
Tibia Malleolus	3	3	–	–
Fibula	6	5	–	–
Femur	4	4	–	3
Patella	4	3	1	3
Calcaneus	11	11	–	6
Metatarsal	7	7	–	–
Phalanges	1	–	1	1

There were no additional known major deep wound infections in any of the survey done for the injuries sustained on the project.

1. A profile study of the injuries sustained by the workmen while building a major dam and bridge in a remote portion of northern Arizona has been presented.

2. The fatal and non-fatal injury rate has been far below the estimates prior to the construction.

3. The fatal injuries have all been massive and often instantaneous. Only two of the workmen who were evacutated to the Page Hospital following injury during a seven-year period have died. Both had injuries that prevented successful treatment.

4. Injuries to the back were more frequent than were expected.

5. The commonest cause of injuries have been falling workmen, falling objects, and the handling of equipment and material.

6. The small number of cases of severe emotional illness is noteworthy.

ACKNOWLEDGEMENTS

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2. Mr. Howard S. Latham, United States Bureau of Reclamation, Chief Safety Engineer, Denver, Colorado.
3. Mr. Ruben C. Gaulkie, United States Bureau of Reclamation, Glen Canyon Project Safety Engineer, Page, Arizona.
4. The Medical Records Department of The Page Hospital, Page, Arizona.
5. All Photographs Courtesy of U.S. Bureau of Reclamation, Photography Department.
6. Portions of this study are included in a paper enttiled "By A Dam Site" published in The Journal of Trauma, March, 1964.

INTERNATIONAL USE OF EMERGENCY MEDICAL IDENTIFICATION SYMBOL

The emergency medical identification symbol sponsored by the American Medical Association for universal use was adopted by the Assembly of the World Medical Association at their meeting in Helsinki, Finland, in June, 1964.

The resolution stated "that this symbol — be adopted by the World Medical Association as the universal emergency medical information symbol, and that its use on identification tags, bracelets and cards be encouraged among the people of the world."

International travellers wearing the universal symbol as an indicator of their special needs in an emergency, will soon have it recognized for what it is in the 58 member nations of the WMA. This is a significant advance in international cooperation for health protection.

Information about the symbol and its use may be obtained from the American Medical Association.



MRS. STEVENS

Arizona's History of Surgery

Part V

by

Audrey D. Stevens

This concludes a picturesque account of the lives and times of our hardy predecessors.

THE story concerning the two rooms with old fashioned spring cots that the people of Globe called a hospital was so interesting I just couldn't resist the temptation of including it in this paper.

Dr. Ira A. Vail was both doctor and miner and delivered the first baby in the new settlement of Globe in 1877. Three years later Mrs. Van Wageman was entertaining guests in her home and while they were playing Whist she suggested that the people there get their friends together and organize a campaign for a hospital. They all agreed that especially with the typhoid, etc. there was a terrible need for a hospital and promptly elected officers, etc.

It was Mr. Van Wageman's duty to raise the money for said hospital and so her first stop was at the Champion Saloon, run by W. F. McNelly and Feliz Knox, neighbors of Mrs. Van Wageman's.

Mr. McNelly gave her fifty dollars and called to Feliz Knox who was running the back room and told him what Mrs. Van Wageman wanted. Mr. Knox rushed to the back room, told the boys at the gaming tables what she wanted — swept the money off the tables into his hat and presented the money to Mrs. Van Wageman. He then closed the gambling tables for the afternoon and proceeded to help her collect. That day after having tried to collect from all the people on Broad Street she had $1,700.00 to start the hospital.

Poor Dr. Vail was killed in 1882 while on his way to one of his mines. He was a witness to a holdup and since he knew the bandits he was killed along with Andy Hall, an express messenger. The lynching of the two bandits was the only lynching Globe has ever had.(25)

In Morenci, Dr. A. M. Tuthill was the surgeon for Arizona Copper Company and Detroit Copper Company. Dr. John Kennedy in an article entitled "Alexander MacKenzie Tuthill, M.D." writes about an operation Dr. Tuthill performed. "He was a master of improvisation. He felt much happier if a potato masher, some nails and some odd pieces of steel were in the operating instrument setup. It was in Morenci that he removed a large tumor of the uterus, operating on a Mexican miner's wife on a dining room table. His anesthetist was a one-eyed grocery clerk who administered the chloroform under Dr. Tuthill's guidance. The tumor was difficult to extract, so he had them sterilize a corksscrew and, in those days corkscrews had large wooden handles on which one could get a grip. With this he extracted the stubborn growth."(26)

A few years before the Lane plate appeared Dr. Tuthill performed an operation on a young girl whose curiosity got the better of her when she went to the mill to watch the whcels turn and caught her skirt in the belt of the machinery. Each time the weels turned her head "whamped" against the floor and consequently when she was rescued the top of her head was crushed. Dr. Tuthill put a silver plate in the girl's head. I

am happy to report that the girl lived many years with the plate in her head and that when she did die it was not because she had been "whamped" in the head but she was "whamped" by typhus.

ONE time when Dr. Tuthill was in New York he related his experience with this patient as well as his experiences with improvised metal plates he used in fractures and while it may be a coincidence, a few years later the Lane plate appeared.(27)

After Arizona became a state the doctors who arrived before statehood had become established and were becoming known for their good surgery throughout Arizona. Many doctors were turning out good work. Some of them who haven't been mentioned before and should be mentioned are:

Dr. Mark A. Rodgers — He had his own hospital in Tucson from 1906 until he sold it in 1913. He made a special study of abdominal surgery and gynecology.(28)

Dr. Juel I. Butler — Tucson — Along with three other doctors he purchased Dr. Mark A. Rodger's hospital.(29)

Dr. Arthur C. Carlson — Arrived in Jerome, 1911. Later he was chief surgeon of the Marcus J. Lawrence Hospital in Cottonwood.(30)

Dr. R. D. Kennedy — Globe — Along with Dr. C. T. Sturgeon, also of Globe, he was mentioned as a top surgeon in many of my letters from retired doctors.(31) He was particularly well known for his orthopedic surgery. During World War I he was loaned to Great Britain as an orthopedic surgeon.(32)

Dr. R. N. Looney — Prescott — When he started practicing in McCabe and Prescott he was one of the few surgeons in that section of Arizona.(33) An interesting side note to Dr. Looney's interesting career is that he was the main instigator in bringing the first Elk (1913) into Arizona.(34)

Also about this time the doctors were going to the various surgical shrines such as Mayos, Murphy in Chicago, and Crile in Cleveland. Some also went to Boston, Baltimore and Europe. "Few went to California, El Paso was second class, New Orleans — only for the southerns — Texas was just aborning."(35)

On one such trip Dr. John E. Bacon as well as other doctors in Arizona learned more about spinals. My second case of Dr. Bacon's tape recording reads, "There was a young Mexican girl, I guess she was about fourteen or fifteen who was married and got pregnant. Her husband worked for the company. One day they called me into the dispensary to look at her and I never saw any single person so thoroughly filled with water as she was. Her legs were swelled up and she was a tiny person. The outlet was solid and greasy like putty but it wouldn't stretch. The head coming down from within would strike that solid bunch of edematous tissue and it would stop right there. I was up against it! The mother had a cold, was coughing and raised a little blood. I said "There is nothing to it. We have got to get this kid out and I can't give her any anesthetic except a spinal,' which wasn't used much at that time. So I gave her a spinal anesthetic. I had that baby out in sixteen minutes, she was closed up within twenty minutes and made an uneventful recovery. She had another baby two years after that and wanted to have that by Caesarian section also but I wouldn't do it and she got by that one naturally."(36)

This case was discussed at the Arizona Medical Meeting in 1914 and Dr. Bacon's memory was correct except for the age of the patient. The patient was nineteen instead of fifteen. At 93½ I hope I can do as well!(37)

The year (1912) Dr. John E. Bacon was President of the Arizona Medical Association. The Association started publishing a medical journal. The editor was Dr. W. W. Watkins. The *Arizona Medical Journal* had for one thing the reprinting of some of the papers given at the meetings and the discussion of the speaker's papers.(38)

AT Bisbee, in May, 1912, Dr. C. P. Thomas, of Los Angeles, gave a paper entitled "Diagnosis and Treatment of Some of the Surgical Diseases of the Stomach." The *January, 1913* issue of the journal has the complete paper and his conclusions were as follows: "First, that all cases of disease of the stomach proper, which are incurable by medicine, are either curable or greatly relieved by proper surgery. Second, that posterior gastrojejunostomy is the operation of choice for selected cases of chronic dilation, extensive malignancy of pyloris, reported hemorrhage from unhealed ulcers of the stomach and pyloric stenosis from whatever cause. Third, that in addition, partial gastrectomy is a justifiable procedure where the malignancy involvement is not too extensive, and all infected glands can be removed, also for large indurated ulcers.

Fourth, that double free-hand suture with fine celluloid linen is the most satisfactory method of anastomosis. Fifth, that the death rate from surgery of the stomach is not greater than other intra-abdominal operations, when the condition of the patient is taken into consideration. I would further add that the anastomosis should be made with the lowest portion of the stomach and the highest possible place on the jejunum, and when done in this way, so far, I have never seen a case of a vicious circle."(39)

AT Globe in May, 1913, Dr. W. G. Randell of Florence, read a paper entitled "The Status of Brain Surgery in Mental Disturbances." Part of which reads "we are justified in operation in any case of traumatic insanity where it is possible to demonstrate the existence of a scar or depressed fracture, or even a positive history of a violent concussion without fracture, and in this connection I give this case history.

A.Y. Male-21 years old. Father committed suicide. Other members of the family normal. Up until about eighteen months ago the patient had never been sick to amount to anything. Gave no history of venereal disease and had never been in any serious trouble before. At this time, while stationed at Fort Bliss, he was thrown from his horse and sustained fracture of the left post central region, following which he was confined to the hospital about two weeks, more or less unconscious and at times violently maniacal. After being released from the hospital, he at two different times tried to shoot members of his regiment for petty trouble, for which his officers refrained from punishing him, presumably for the reason that they considered him irresponsible. On the night of October 30th, 1912, in a fit of jealousy because he found one of his friends in company with a girl of poor reputation, he attempted to shoot the man, but missed and killed the girl. He was sentenced for second degree murder. From the time of his incarceration he was morose, taciturn and evidently suffering from mental aberration.

On the morning of March 5th, 1913, he was brought into my office in the beginning stage of acute mania. Struggling and insisting that somebody was trying to kill him, he cowered down in his chair and covered his face as though trying to protect himself. I ordered two attendants to take him to a cell and stay with him, but in a few hours he was violent, had to be given sedatives, and it took four men to hold him from hurting himself or them. He refused to eat, was very foul in his personal habits and complained almost constantly of an occipital headache. The manias lasted about a week, after which he gradually became more rational and then I succeeded in eliciting the foregoing history of his injury. On examining his head I found scar and depression over left post central region, about ⅛th inch lower than right side, extending over an area about 2½ inches square. On March 26th I operated, elevating the depressed area of bone. To allow for sufficient expansion, I cut away the inner table and the intervening cancellous bone tissue. He made an uneventful recovery and has been perfectly rational up to the present time."(40)

In the July, 1914, issue a paper was printed entitled "The Post Operative Treatment of Our Abdominal Cases," by Dr. A. W. Morton of San Francisco, California. Three Arizona doctors have comments about the paper. Dr. Bacon discussed the caesarian operation I have recorded in this chapter.(41)

Dr. E. Payne Palmer, of Phoenix, said, "In all emergency cases I wash out the stomach at the end of the anesthesia, and in gall bladder and acute appendicitis cases, this should be done. — Regarding the stomach condition, my nurses give the patient, as soon as the patient awakens and asks for a drink, a large glass with saturated solution of bicarbonate of soda. Shortly after the patient vomits, if this occurs, she gives another glass. I find that this relieves many cases and obviates lavage.—(One Case) She had seven pints of water and no vomiting after the second dose and left the hospital in ten days well. — I make it a rule, in most cases, to let the patient get up when they want to. In some cases it is necessary to hurry them up — where there is danger of hypostatic pneumonia, or in some cases, cancer of the stomach where a gastroenterostomy has been done, when the patient should be up as soon as possible."(42)

DR. A. J. Murietta, of Jerome said, "I use the method of washing the stomach before moving the ptient from the table.—Another thing, in operative cases, we try to have them perfectly passive, allowing the nurses to do all the work."(43)

"Bone Transplantation as a Treatment of Fracture and Fracture Dislocation of the Spine" was

the title of a paper (Oct. 1914) by Dr. E. Payne Palmer. His conclusions were as follows:

1. All cases of injury to the spine with deformity and paralysis should have an immediate exploratory laminectomy.

2. Bone transplantation as a treatment for spinal fractures and dislocations offers hope to many unfortunates who are now wearing plaster casts, jackets or braces.

3. The operation is not a difficult or dangerous procedure and when done as secondary operation, it is not necessary to enter the cord zone in preparing for an internal splint, which gives immediate immobilization, extension and support to the injured spine, which can not be secured in any other way.

3. A firm bony union of the transplant to the spinous processes above and below the injury gives the injured spine a firm supporting power almost up to normal.

5. Should a bony union of the transplant to the spinous process fail, the transplant would give at least temporary immobilization, support and extension to the injured spine which could be secured by no other means.

6. Bone transplantation should be resorted to after laminectomy in most cases of fracture dislocation of the spine where the cord is not seriously injured. In the majority of cases it can be done at the time of the laminectomy.

7. It is best to splint two spinous processes above and two below the injury, to insure union of the transplant and increase the strength of the spine.

8. The action of the spinal ligaments and muscles are not materially interfered with, so good range of extension, flexion and rotation of the spine can be secured.(44)

In the *November, 1915* issue Dr. Charles S. Vivian from Humbolt, Arizona gave a preliminary report on "Chronic Appendicitis in Contra-Distinction to Sub Acute Form." He concluded his report with these five statements — One, Chronic Appendicitis exists as a clinical entity, and differs from the sub-acute variety in not having acute exacerbations. Two, Chronic Appendicitis exists more frequently than it is diagnosed and is frequently erroneously treated by internal medication. Three, Chronic Appendicitis gives rise to numerous and frequent vague symptoms, and should be suspected whenever general ill health is the presenting symptom. Four, Repeated physical examinations should be made and the diagnosis proven as far as possible by exclusion. Five, Other things being equal appendectomies should be performed in suspected cases even if there has been no suggestion of acute attack."(45)

After Dr. Vivan completed giving his paper a discussion was held and there were two schools of thought. Some doctors felt that many an appendix was needlessly removed. Still others commented that there were more cases of appendectomies "around loose" than they knew of.(46)

In the *1916, March* issue a statement was made that Dr. W. W. Watkins had resigned as editor of the Journal and that the Arizona Medical Society and New Mexico Medical Society would be under a monthly magazine called "Southwestern."

In the year 1944 a journal called "Arizona Medicine" started publication. At that time Dr. Otto E. Uttzinger of Ray, Arizona was President.

Conclusion

I read a newspaper's obituary, author unknown, that was written regarding a pioneer doctor. I felt it would fit the description of every early doctor I've mentioned and so decided it was only fitting to use it at the conclusion of this paper.

"EDITORIAL — In the death of Dr. _____ _____, another old pioneer of Arizona passes to the other shore, after a frontier life of over a quarter of a century, spent in the conquest of Arizona to civilization. Only a few years more and the last of the old pioneers will be called to rest. The work which has been done in wresting Arizona from the control of savagery in the interest of American civilization will soon be forgotten for the greater part of their work is a sealed book known only to the pioneers and which passes away with them. If the mountain, the plain, and the canyon could speak of heroic deeds the pioneers might be given to posterity; but it is not thus and the heroism and the hero passes into forgetfulness together."(1)

Acknowledgment

This past year I have made a great many new acquaintances and I do hope we become friends. For this reason I am not going to enumerate the librarians, doctors, and hospital administrators who were so kind as to send me material or

give me suggestions as to where to find said material as I might by pure accident leave out one name and lose an acquaintance. In other words, I am going to follow the advice given by Samuel Johnson, "If a man does not make new acquaintances as he advances through life, he will soon find himself left alone. A man, sir, should keep his friendship in constant repair."(2)

FOOTNOTES

25. Mr. J. L. Cline, Administrator of Globe County Hospital, personal interview, (May, 1962).
26. John W. Kennedy, M.D., "Alexander Mackenzie Tuthill, M.D." **Arizona Medicine,** Vol. XV — No. 11, (Nov., 1958), (p. 817).
27. Ibid.
28. Orville Harry Brown, M.D., op. cit., Vol. II.
29. Ibid.
30. A. C. Carlson, M.D., F.A.C.S., personal interview, (June 20, 1962).
31. Emil C. Houle. M.D., op. cit.
32. Orville Harry Brown, M.D., op. cit., Vol. IV, newspaper clipping.
33. A. C. Carlson, M.D., op. cit.
34. J. W. Kennedy, M.D., "The Return of the Wapiti to Arizona," **Arizona Medicine,** (Jan., 1962), (p. 15).
35. Emil C. Houle, M.D., op. cit.
36. John E. Bacon, M.D., op. cit.
37. **Arizona Medical Journal,** Vol. XI — No. 6, July, 1914), (p. 9).
38. Ibid., Vol. I — No. 3.
39. Ibid, (Jan., 1913), (p. 39).
40. Ibid., Vol. XI — No. 1., (p. 12).
41. Ibid., Vol. II — No. 6, (July, 1914), (p. 5).
42. Ibid., (p. 8).
43. Ibid., (p 9).
44. E. Payne Palmer, M.D., **Arizona Medical Journal,** Vol. II — No. 9, (Oct., 1914). (p. 15).
45. Arizona Medical Journal, Vol. III — No. 11, (p. 8).
46. Ibid., (p. 9).

SHORT BIOGRAPHIES OF DOCTORS MENTIONED

Chapter I

1. Dr. George Kendall — (Could not locate any additional information).
2. Dr. Charles B. Ewing — (Could not locate any additional information).
3. Dr. Warren E. Day — Born 1841. Medical Degree — Albany Medical School, (1863). Elected member of Arizona Medical Society, (1899).
4. Dr. Clara S. Webster — Born 1877. Medical Degree — University of Illinois, College of Medicine. Specialty — Gynecology Member of Fifty Year Club, Retired.
5. Dr. Mary L. Neff — Born 1853. Medical Degree — University of Iowa, (1900).
6. Dr. Clarence G. Salsbury — Medical Degree — College of Physicians and Surgeons, (1913). Internship — New York Lying-in Hospital. In charge of medical work for three different stations in China, (1914-1926) 1927-1950 — Chief of Bureau of Preventive Medicine. 1950-1961 — Commissioner of Public Health

Chapter II

7. Dr. B. J. D. Irwin — (Could not locate any additional information).
8. Dr. H. A. Hughes — Born 1848. Medical Degree — Jefferson School of Medicine, (1882). Post Graduate Work — Belleview and College of Physicians and Surgeons, New York. President of Arizona Medical Association, (1893)
9. Dr. George E. Goodfellow — Born 1855. (Father studied mining engineering, medicine and dentistry). Medical Degree — University of Wooster, Cleveland, Ohio, (1876). Dr. Cecil, well known urologist of Los Angeles called Dr. Goodfellow, "Father of Prostatectomy," (1921). Died 1910.
10. Dr. John C. Handy — Born 1844. Medical Degree — Cooper Medical College, (1863). Division Surgeon for the Southern Pacific Railroad, (1880). First Chancellor of University of Arizona, (1886). President of Arizona Pioneers.
11. Dr. Meade Clyne — Born 1881. Medical Degree — Northwestern University, (1907). License issued, (1910). President of Pima County Medical Society. President of Arizona Medical Association, (1934-1935). Member of Fifty Year Club.
12. Dr. W. V. Whitmore — Born 1862. Medical Degree — University of Southern California, (1890). President of Arizona Medical Association, (1904). Member of the Arizona Board of Medical Examiners, (1905-1912). Author of a series of articles entitled, "Arizona Pioneers in Medicine."
13. Dr. Scott Helm — Born 1862. Graduated from Rush Medical College. One Year Internship at the Marine Hospital in Chicago. Post Graduate Course at Heidelberg, Germany. Specialized — Surgery. Thrown off horse and killed, (1897).
14. Dr. D. M. Purmon — License No. 158, (1903). Elected member of Arizona Medical Association, (1894). President of Arizona Medical Association, (1896).
15. Dr. L. D. Dameron — Born 1867. Medical Degree — College of Medicine, Louisville, (1891). Secretary, Arizona Medical Association, (1893-1898). Charter Member of Arizona Medical Association.
16. Dr. Ancil Martin — Born 1861. Medical Degree — Rush Medical College, (1885). First Vice President of The Arizona Medical Association, 1892). President of The Arizona Medical Association. (1894). First Vice President of the Arizona Medical Association, (1905). For twelve years was on the Board of Territorial Examiners. Died 1926.
17. Dr. J. N. McCandless — Born 1838. Medical Degree — Jefferson Medical College, (1863). Died 1904.
18. Dr. J. H. Taggart — (Could not locate any additional information).
19. Dr. P. J. Cotter — Elected First Vice President of Arizona Medical Association, (1894). Elected President of Arizona Medical Association, (1895).
20. Dr. Leonard Y. Loring — (Could not locate any additional information).
21. Dr. Adolphus H. Noon — Born 1838. Medical Degree — College of Physicians and Surgeons, San Francisco, (1877). Medical Course taken at British Admiralty Hospital, South Africa. Founded Eureka, Utah, (1865). Settled in Arizona, (1879). First President of the Santa Cruz County Medical Society. County Supervisor, (1900). Mayor of Nogales, (1910-1911). Died 1929.
22. Dr. W. T. Chenowith — Medical Degree — Medical College of Cincinnati University, (1888). License No. 20.

Chapter III

24. Dr. H. D. Ketcherside — Born 1894. Medical Degree — University of Maryland, (1917). Practiced in Yuma and Phoenix. Retired.
25. Dr. J. A. Ketcherside — Born 1874. Medical Degree — University of Tennessee, (1893). Son of E. B. Ketcherside and brother of H. D. Ketcherside. President of Yuma Medical Society. President of Pacific Coast Association of Railway Surgeons.
26. Dr. E. B. Ketcherside — Born 1847. Medical Degree — University of Tennessee, (1884). Treasurer of Arizona Medical Association, (1907, 1908 and 1911). Second Vice President Arizona Medical Association, (1913). Father of Dr. H. B. and J. A. Ketcherside.
27. Dr. John E. Bacon — Born 1869. Medical Degree — University of Pennsylvania School of Medicine, (1892). License No. 4, (1903). Chief Surgeon at Miami Inspiration Hospital, Miami, Arizona, (1910-1939) (20a). President of The Arizona Medical Association (1912-1913). Charter Member of F.A.C.S. Chairman Credential Committee for the F.A.C.S. — 35 yrs. Member Fifty Year Club. Resides in Pomona.
28. Dr. E. W. Adamson — Born 1875. Medical Degree — University of Michigan, School of Medicine, (1904). License issued, (1905). President of Cochise County Medical Society, (1928-1929). Member of Fifty Year Club. Retired.
29. Dr. W. W. Watson — Born 1883. Medical Degree — Virginia Medical College, (1906). Editor of **Arizona Medical Journal,** (1913-1917). Editor of **Southwestern Medicine,** (1922-_____).
30. Dr. Nelson C. Bledsoe — Born 1876. Medical Degree — University of Southern California, (1903). Chief Surgeon at Copper and Arizona Hospital, Bisbee, Arizona. President of Cochise County Medical Society. President of Arizona Medical Association, (1934-35). Member of Fifty Year Club.
31. Dr. Charles T. Sturgeon — Born 1880. Medical Degree — University of Michigan, (1904). Surgeon at Old Dominion Mining Hospital and Gila County Hospital, Globe, Arizona, (1906). Board of Medical Examiners, (1913). Colonel, Medical Department, (1912-1919). Clinical Professor of Surgery at Southern California University Medical Department. President (1940) Pacific Coast Surgical Assn. Board of Medical Examiners, (5 years). Nobel Prize Consultant on Board for Awarding Merit (33a).
32. Dr. A. M. Tuthill — Born 1871. Medical Degree — University of Southern California, (1895). Internship at Los Angeles County Hospital, Los Anegeles, California. Chief Surgeon at Detroit Copper Mining Company, Morenci, Arizona, (1898-1916). Brigadier-Ceneral, (1917). President of Arizona Medical Association, (1921). Adjutant General of Arizona, (1936-1952).
33. Dr. Mark A. Rodgers — Born 1868. Medical Degree, (1891). Resident Physician at Allegheny Hospital, (1892). Died 1917.
34. Dr. Joel I. Butler — Born 1878. Medical Degree — Johns Hopkins (1901). Internship at Johns Hopkins, (1901-1903). F.A.C.S., Died 1928.
35. Dr. Arthur C. Carlson — Born 1888. Medical Degree — University of Michigan, School of Medicine, (1910). President of Arizona Medical Association, (1928-1929). F.A.C.S. One of the founding directors of Marcus J. Lawrence Memorial Hospital, (1945-1951). One of two surgeons accepted in all the hospitals in Phoenix with unlimited privileges in type of surgery he was allowed to perform. (a). Died June, 1962.
36. Dr. R. D. Kennedy — Born 1878. Medical Degree — University of Michigan, (1903). Nominated Treasurer of the Arizona Medical Association and held the same office for several years starting in 1913. F.A.C.S. Died 1941.
37. Dr. R. N. Looney — Born 1870. Medical Degree — Vanderbilt Medical College, (1898). Post-graduate Course — Polyclinic Hospital, New York. 1912 — State Superintendent of Health. 1906 — Third Vice President of Arizona Medical Association. 1910 — President of Arizona Medical Association. Died June, 1962.
38. Dr. C. A. Thomas — Born 1877. Medical Degree — Tulane University, (1905).
39. Dr. W. G. Randell — (Could not locate any additional information).

Measurement of Cholinesterase Activity of the Blood

by

Robert S. Ganelin, M.D.

The author succinctly reviews the pertinent literature concerning this laboratory test and presents orginal investigations by himself and his colleagues which emphasize its limitations as a clinical tool. His critical approach makes this paper a valuable contribution.

MEASUREMENT of the cholinesterase activity of the blood is a widely used laboratory test for detecting toxic effects of exposure to organophosphorus insecticides. However, discussions with laboratory personnel, physicians, and persons in industry utilizing this test have revealed major difficulties in its interpretation. One reason for these difficulties is the variability of "normal" values, not only from person to person but in the same person from time to time. In addition, insufficient information is available in the general medical literature concerning the multiplicity of factors affecting cholinesterase activity, its response in mild and serious organophosphorus poisoning, and its value in determining whether or not personnel should be permitted continuing exposure or re-exposure to toxic insecticides.

This report is designed to outline some of the basic information available on the cholinesterase activity of the blood and to develop a plan for the rational use of its measurement.

Cholinesterase

Cholinesterase refers to two groups of enzymes, "true" and "pseudo" cholinesterases, each of which is widely distributed in the body. Both are present in nervous tissue; the former is found primarily in this tissue, while pseudocholinesterase is, in general, more abundant in nonneural tissue[1,2]. In normal neural transmission the chemical, acetylcholine, which is formed at synapses and myoneural junctions, acts as a mediator of nervous impulses by its ability to depolarize certain membranes. Cholinesterase hydrolizes this chemical, thus terminating its action. Absence or inhibition of cholinesterase permits accumulation of relatively large amounts of acetylcholine and overstimulation of the nervous and muscular systems resulting in the characteristic signs and symptoms of organophosphorus poisoning[3]. Apparently, true cholinesterase is the principal enzyme participating in normal neural transmission. The role of pseudocholinesterase in this function is uncertain, but both enzymes are inhibited by the organophosphorus compounds[1,2,4].

The cholinesterases which ordinarily are tested clinically are those of the red cells and plasma, these being relatively pure representatives of true and pseudocholinesterase, respectively. The pseudocholinesterase of the plasma is formed in the liver and its activity is decreased in both acute and chronic liver disease, as well as in other debilitating diseases[5,6,7]. Other conditions which can cause significant decreases in pseudocholinesterase activity are myocardial infarcation[7-8], dermatomyositis[7], and pulmonary tuberculosis[9]. A large number of seemingly unrelated

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drugs have a mild or moderate depressant effect upon serum cholinesterase activity[6]. Inhibition of pseudocholinesterase activity by psychotomimetic drugs, including chlorpromazine, has been demonstrated in vitro[10]. The origin of true cholinesterase is unknown and its activity is not known to be affected by any specific disease, although it does vary slightly with hematocrit[11].

As the rate of regeneration of true cholinesterase in the blood is identical with the rate of red blood cell formation[12,13], the enzyme is probably formed by the erythroblast or incorporated into the cell during its development stage.

Measurement of Cholinesterase Activity of Blood

To measure the cholinesterase activity of the blood, one establishes an in vitro enzyme system which measures the capacity of the cholinesterase of the red cells or plasma (or serum) to hydrolyze acetylcholine or some related substrate in a standard period of time. In the electrometric method of Michel[14], acetylcholine is used as a substrate and activity of the enzyme is measured by the change of pH of the buffered solution. Other techniques include a manometric measurement of CO_2[15] released by the action of the hydrolyzed acetylcholine on sodium bicarbonate, a titrimetric method[16] that measures the NaOH necessary to neutralize the acetic acid released by hydrolysis of acetylcholine; a colorimetric method that indirectly measures acetylcholine hydrolyzed by developing a color complex with the unhydrolyzed portion of the mixture[17], and photometric methods that are based on the measurement of decrease in absorbance of an acid-base indicator[18]. There are numerous variations of these basic methods[19,20,21].

Although the test, in whatever form, is a relatively simple one, considerable differences between laboratories may result from minor variations in technique with respect to maintenance of constant temperature, use of fresh reagents, subtraction of activity of the reagents from the activity of the specimen, use of deionized water, and adequate separation of red cells and plasma.[22,23] As long as such factors remain constant in any laboratory, comparison of results over a period of time has a valid basis. However, before one attempts to detect small differences on the basis of values obtained in different laboratories, the "normal" values for each must be known.

There are also differences in methods of reporting results of cholinesterase tests. The most direct method of reporting results of the electrometric method is in change in pH units per hour. Michel[14] suggested reporting results in percent of the mean normal values for the laboratory, and many commercial laboratories report their results in this manner or as percent of the mean normal values listed by Michel (0.703 and 0.753ΔpH/hr. for red cells and plasma, respectively). Accordingly, before attempting to compare results between laboratories, one must ascertain the method of reporting from each.

"Normal" Values

Table 1 lists "normal" values for cholinesterase activity reported from a few of the laboratories using the electrometric method. Since the ranges shown are wide and since routine tests

TABLE I

Cholinesterase Activity of Blood of Normal Subjects — Electrometric Method.

		Activity in ΔpH units/hr. Mean & Standard Deviation			Activity in ΔpH/hr. Range			
No. of Persons	No. of Samples	Red Cells	Plasma	Serum	Red Cells	Plasma	Serum	Reference
12		0.703	0.753					Michel[14]
17*	85	0.809±.097	0.898±.151		0.66—0.98	0.66—1.23		Grob et al.[13]
255*	549	0.861±.091	0.912±.112		0.554—1.252	0.403—1.652		Wolfsie & Winter[21]
20m				0.95±.24				Fremont-Smith et al.[5]
20f				0.78±.12				
120	120 ?			0.94±.16			0.58—1.37	Vorhaus et al.[6]
400m	400 ?	0.766±.081	0.953— ?**		0.39—1.62	0.44—1.64		Rider et al.[22]
400f	400 ?	0.750±.082	0.817— **		0.34—1.10	0.24—1.54		
19	38	0.76± .106	0.82±0.20		0.60—1.01	0.55—1.32		Ganelin et al.[24]
23*	46	0.82± .109	0.78±0.19		0.67—1.03	0.49—1.20		
111	126	0.77± .11*	0.88±0.18*		0.44—1.09	0.47—1.45		Sumerford et al.[27,28]

* Denotes micro method.

**Values for plasma activity in this series were found to vary slightly with age. Values listed are mean for persons aged 40, and this mean is almost identical with that for all age groups combined.

are generally made to detect individuals with significant decreases in cholinesterase activity, it is obvious that a single specimen is of limited significance in detecting anti-cholinesterase effect. Large changes can take place in the activity of an individual's blood while the cholinesterase measurement remains within the normal range; normally low values can, on casual inspection, appear to indicate exposure to anti-cholinesterase agents.[11,24] Therefore, it is highly desirable when using the cholinesterase test as a measure of anti-cholinesterase effect to obtain one or more pre-exposure tests as guides for future measurements.

There may be great variation of enzymatic activity in individuals with time. Studies of this variation[11,25,26] have shown that maximal fluctuations were from 13 to 25 percent for red cells and from 20 to 23 percent for plasma cholinesterase. Results of studies at this laboratory,[24] in which monthly examinations of blood of healthy adults were repeated by the same technician over a period of eight months, showed even greater variations. The plasma activity of one normal individual ranged from 0.61 to 1.37ΔpH/hr. This variability within individuals accentuates problems of interpretation of cholinesterase activity, even when pre-exposure values are available for comparison. A decrease in activity of 30 percent may indicate normal variation, while a decrease of 10 percent could conceivably be significant of anti-cholinesterase effect.

Cholinesterase Activity in Cases of Poisoning

As might be assumed from the knowledge of the variation of cholinesterase activity in healthy individuals, there is considerable variation in values found in persons with unequivocal poisoning. Table 2 lists the values determined by this laboratory for persons hospitalized during 1958 with unequivocal poisoning due to occupational exposure to organophosphorus compounds.[24] Although all subjects were sufficiently ill to be hospitalized, none was considered critically ill. With this in mind, it is notable that the values are consistently low, particularly the plasma values. Table 3 lists several examples of persons with regular, heavy exposure to organophosphorus compounds who had no symptoms of systemic poisoning but had cholinesterase activities which were far below the normal range.[27] In contrast to the values for patients in Tables 2 and 3, cases of poisoning in persons with no known previous symptoms have resulted in death with cholinesterase levels in the range of 15 to 25 percent of normal, and mild or moderate cases may be associated with higher cholinesterases, frequently in the normal range.[12,24,28]

It appears that factors important in poisoning are not only the degree of fall in cholinesterase but also the rapidity of fall.[28] Probably then, a low cholinesterase activity in persons with long-term occupational exposure is of much less significance than in a person who has had a single heavy exposure. A low cholinesterase activity alone, even if known to be significantly lower than a patient's pre-exposure level, is not diagnostic of clinical poisoning.

If unequivocally lowered cholinesterase activity is not necessarily associated with clinical poisoning, what is its significance? It is possible that apparently asymptomatic persons with

TABLE 2

Cholinesterase Activity of Red Cells and Plasma in Mild Cases of Organophosphorus Poisoning Occurring in Persons with Chronic Occupational Exposure to Insecticides

Patient	Cholinesterase Activity in Δ pH/hr. RBC	Plasma	Occupation
G.W.	0.05	0.00	Loader
P.R.	0.23	0.05	Loader
M.M.	0.30	0.10	Loader
A.M.	0.28	0.15	Loader
R.C.	0.05	0.00	Aerial Applicator
G.R.	0.20	0.08	Aerial Applicator
R.M.	0.25	0.09	Formulator
W.T.	?	0.06	Formulator
J.R.	?	0.04	Formulator
G.C.	0.12	0.13	Formulator
E.P.	0.24	0.00	Ground Sprayer

TABLE 3

Cases of Low Cholinesterase Activity Without Symptoms of Poisoning in Persons with Chronic Occupational Exposure to Organophosphorus Insecticides.

Subject	Cholinesterase Activity in Δ pH/hr. RBC	Plasma	Occupation
A. R. (1951)	0.18	0.18	Aerial Applicator
A. R. (1952)	0.31	0.24	Aerial Applicator
R. Y.	0.10	0.10	Aerial Applicator
R. C.	0.20	0.10	Aerial Applicator
E. G.	0.43	0.11	Aerial Applicator
R. F. O. (1951)	0.20	0.25	Formulator
R. F. O. (1952)	0.11	0.22	Formulator
R. G.	0.19	0.12	Formulator
C. W.	0.22	0.17	Formulator
O.R.	0.21	0.17	Ground Sprayer
J. P.	0.40	0.12	Loader

markedly lowered cholinesterase activities are unable to function optimally. This possibility is particularly important when one considers the necessity of optimal neurophysiological function in pilots who apply insecticides with aircraft. There exists an impression that subclinical neurological dysfunction may be a relatively isolated manifestation of mild poisoning, and there are some cases in the literature which appear to substantiate this conclusion.[29]

IT IS also possible that persons with lowered cholinesterase activities are much more susceptible to poisoning than persons with normal activities. The many low cholinesterase activities in asymptomatic persons with continuing heavy exposure (Table 3) casts doubt upon this hypothesis. It would appear that such persons are not necessarily more susceptible to poisoning than those with "normal" values.[29]

Some corroboration of this is found in unpublished animal studies in which a group of rats was fed daily 1.5 mg./kg. of parathion for from 1 to 120 days.[30] This dose resulted in a uniform drop of red cell and plasma cholinesterase activities to averages of 8 and 20 percent of pre-exposure levels, respectively. When the poisoned and control animals were challenged with large doses of parathion, the LD_{50} values of the poisoned groups were only slightly less than those of the controls. Hence the animals with low cholinesterase activity secondary to chronic exposure were not much more susceptible to acute poisoning than animals with normal cholinesterase activities. However, results of other animal studies justify continued caution in connection with repeated doses each of which approaches the level that produces illness.

Is there then any value to use of routine cholinesterase determination? The author feels that the answer is yes, providing the factors outlined above are kept in mind. Despite its limitations, the measurement of cholinesterase activity is the only generally available test for organophosphorus effect, and organophosphorus exposure is one of the few factors affecting cholinesterase activity, particularly that of red cells. Diseases causing significant depression of plasma cholinesterase ordinarily do not permit the physical activity associated with occupational exposure to insecticides. When decreases of 25 percent or more from pre-exposure activities are found in apparently healthy, occupationally exposed persons, one can logically assume that the depression is due to organophosphorus effect and that the worker's safety technique or equipment requires investigation. Although this is the only unequivocal contribution of a routine cholinesterase test, it is felt that there is great value to such surveillance.

A decreasing cholinesterase activity, however, does not indicate that a person should be immediately removed from occupational exposure. As with the interpretation of all laboratory results, one must take a careful history and perform a physical examination. If, despite a decrease in cholinesterase activity, these examinations reveal no evidence of clinical poisoning, the present evidence indicates that the subject should be allowed to continue his work so long as proper safety technique can be insured.[29] If cholinesterase activity continues to decrease, one must assume that the subject is unable to follow safety regulations and he must be removed from contact with toxic materials.

Cholinesterase Activity Following Clinical Poisoning

The recovery of cholinesterase activity following clinical illnesses is well documented. In general, the plasma cholinesterase is regenerated more rapidly than that of red cells.[31] Plasma activity may require from several days to a month to return to pre-exposure levels while red cell activity in severe exposures may require 10 weeks to 6 months. Bearing in mind that normal cholinesterase activity varies 25 percent or more in individuals with time, one must not be surprised, disappointed, or anxious about a cholinesterase activity that remains below the pre-exposure value for even longer periods of time.

How soon after poisoning can one allow a patient to return to work with organophosphorus insecticides? Many physicians require the cholinesterase activity to approximate pre-exposure or "normal" levels before allowing potential re-exposure. Although data on this point are lacking, it seems logical to assume that the previously mentioned factors regarding the cholinesterase activity are valid here also, and that a person fully recovered from his illness whose cholinesterase has begun to regenerate should be allowed to return to work as long as safety

precautions are rigidly enforced. Such a decision must be made by the physician only after evaluating the severity of illness, length of exposure, rapidity of return of cholinesterase activity, general health of the patient, and intelligence and reliability of patient and employer in regard to safety precautions.

Because of the rapid acceptance of the cholinesterase inhibitors as insecticides, the cholinesterase test has of necessity been utilized as a clinical tool before adequate information has become available on important points. Because of their nature, many of these factors will never be critically evaluated in controlled studies on humans. Accordingly, information must come from animal studies and close observations of cases of human poisoning. It behooves anyone who is using this laboratory test to view it critically at all times and to use it only to augment thorough history-taking and physical examination.

Summary

Measurement of the cholinesterase activity of the blood is widely used by physicians associated with the insecticidal industry as a measurement of exposure to organophosphorus compounds. Many techniques for measurement of this enzyme activity are available, some of which are relatively simple and accurate.

Interpretation of results, however, necessitates cognizance of the factors which can cause different values from laboratories using similar techniques, of the wide range of normal values in any population, of the variability in the activity in normal persons with time, and of factors other than organophosphorus poisoning which can affect the cholinesterase activity.

Depression of cholinesterase activity may occur without signs or symptoms of poisoning and in such a case may not result in suboptimal neurophysiological function nor predispose to overt poisoning. Further, cholinesterase response is affected by the duration as well as the magnitude of exposure, and the measurement after exposure may be valueless without knowledge of pre-exposure activity, degree and duration of exposure, and results of physical examination.

Hence, the primary value of cholinesterase measurement is to aid in the evaluation of exposure and of proper techniques in handling organophosphorus compounds. It is a valuable laboratory tool that should be used only in association with thorough history-taking and physical examination.

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Prevalence Of Phenylketonuria In An Institution For The Mentally Retarded

by
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Edward S. Magee, M.D.
Robert M. Siudzinski, M.D.

Though this disorder is relatively uncommon, it must be born in mind by every physician who delivers or cares for children.

ALTHOUGH the effects of mental deficiency can often be ameliorated by skillful medical, psychological, educational and social management, it is a generally accepted fact that there are no "cures" for this condition. The only hope for reducing the disability caused by mental deficiency lies in prevention. Phenylketonuria is one of a group of genetically determined disorders of metabolism in which early diagnosis and treatment may lead to the prevention of the mental deficiency which otherwise occurs. This study deals with the determination of the prevalence of phenylketonuria in a state institution for the mentally retarded—the Arizona Children's Colony at Coolidge.

It has been predicted that approximately one per cent of the residents of institutions for mental defectives have this metabolic disorder[1,2]. Since only two phenylketonuric patients were known out of our resident population of over 750, it seemed reasonable to expect to find other such patients within the population.

A number of reliable and inexpensive tests to detect phenylketonuria have been devised. They are:

1. The ferric chloride test.

This test is performed by adding three drops of 5% or 10% ferric chloride solution to 1 cc. of urine. The appearance of a green color indicates the presence of phenylketone bodies in the urine. Normal urine will remain yellowish in color. The ferric chloride may also be applied on a wet diaper. One drop of the 5% or 10% solution will give a green color which is "positive" for phenylketonuria[1].

2. The ferric chloride reagent strip test (Phenistix).

These reagent strips are strips of cellulose impregnated with ferric and magnesium ions plus cyclohexylsulfamic acid. The procedure in using these strips is to either dip the strip in the urine sample being tested, or to dampen the strip by pressing it against a wet diaper. The reaction to this procedure is to be compared with a color chart on the bottle label within one-half minute[3,4].

3. The phenylhydrazine test.

This test consists of mixing equal parts of urine and the test reagent, which is a saturated solution of 2-4 dinitrophenylhydrazine in one normal hydrochloric acid. A normal urine of clear yellow color will remain so if the results are negative; whereas, phenylketonuric urine will become a cloudy yellow within 1 to 5 minutes. This is a permanent reaction and will be essentially unchanged hours later[5].

COMPARATIVE CHARACTERISTICS OF PHENYLKETONURIC PATIENTS

Case	CA*	SA*	SQ*	Ferric Chloride Test	Plasma phenylalanine Level	Race	PHYSICAL CHARACTERISTICS Eye Color	Hair Color	Skin Condition	Seizures	Hyperkinetic	Other
1.	12-2	3-6	29	Pos.	29 mg %	Caus.	Blue	Blond	Subject to Pyoderma	None Recorded		
2.	15-4	2-11	18	Pos.	37 mg %	Cauc.	Blue	Blond	Normal	None Recorded	Hyperkinetic, hyperactive plantar and Babinski reflexes, knee jerks moderate	
3.	26-0	0-11	4	Pos.	25 mg %	Cauc.	Light Brown	Blond	Subject to Pyoderma	None Recorded	Hyperkinetic, self punitive, blind (cataracts), all deep reflexes hyperactive, plantar reflex absent, spastic quadraplegia	
4.	17-5	2-6	15	Pos.	34 mg %	Cauc.	Blue	Blond	Normal	Seizure History	Hyperkinetic, all deep reflexes hyperactive, extremely fretful	
5.	9-11	0-11	9	Pos.	41 mg %	Cauc.	Blue	Blond	Subject to Pyoderma	Seizure History	Hyperkinetic, aggressive, fretful, hyperactive plantar and Babinski reflexes, spastic quadraplegia	
6.	11-9	1-0	9	Pos.	36 mg %	Cauc.	Light Brown	Blond	Subject to Pyoderma	Seizure History	Hyperkinetic, self punitive, hyperactive plantar and Babinski, unable to elicit knee jerk due to muscular atrophy, spastic quadraplegia	
7.	17-10	1-3	7	Pos.	27 mg %	Cauc.	Blue	Blond	Extensive Eczema	None Recorded	Hyperkinetic, hyperactive knee jerks and plantar reflexes, spastic quadraplegia, minimal response to environment	
8.	7-3	1-8	23	Pos.	13 mg %	Cauc.	Blue	Blond	Normal	None Recorded	Hyperkinetic, self punitive, aggressive, hyperactive plantar and Babinski, absent knee jerk, all arm deep reflexes hyperactive	

* CA: Chronological Age – SA: Social age as obtained from the Vineland Social Maturity Scale – SQ: Social Quotient SQ = CA/SA

4. Guthrie's Inhibition Assay Test.

This test utilizes an agar culture which contains a phenylalanine antagonist, Beta-2-thienylalanine, and an inoculation of Bacillus subtilis spores. Paper disks with blood from patients who are being tested are placed upon the agar surface in rows, together with a number of control disks, and incubated overnight when the results can then be observed. Zones of growth surrounding the paper disks will be barely visible for phenylalanine normal blood. A response comparable to the control disks which contain 6 mg. per cent phenylalanine or higher, should be considered a "positive" result and would require confirmation by quantitative blood assay[6]. This method has the advantage of having detected phenylketonuric patients as early as the second day of life.

5. Fluorimetric method for the determination of phenylalanine in serum.

"The fluorimetric determination of phenylalanine is based on the enhancement of the fluorescence of a phenylalanine-ninhydrin reaction product by a peptide, leucylalanine. The method allows phenylalanine to be measured quantitatively in the presence or absence of other amino acids at a final concentration of 10^{-7}M . . . only 5 ML of normal serum is required for analysis. The method has been applied to the determination of phenylalanine serum levels in adult, pediatric, and phenylketonuric patients[7]."

Phenylketonuria is known to follow classic Mendelian laws and is transmitted by inheritance of autosomal recessive genes[1,8]. Since both parents must be carriers and since the siblings of phenylketonuric patients are likely to be either affected by the disorder or to be carriers, identification becomes of paramount importance to further prevention and control. Evidence has also been reported that phenylketonuric mothers may have non-PKU retarded children. These children would, of course, be heterozygous carriers. It has been proposed that the high phenylalanine level maintained by the mother is the etiological basis for retardation in these cases[9].

Methods

The ferric chloride reagent strip test (Phenistix) was selected for use because of its low cost, reliability, and ease of use with either liquid urine specimens or application to damp diapers.*

*Phenistix is produced by the Ames Company, Inc. of Elkhart, Indiana.

An attendant was selected in each cottage and trained in the use of the reagent strips. All children in each cottage were checked at least once. Children who fit the "clinical picture," that is those children who exhibited one or more of the symptoms associated with phenylketonuria, were tested on several successive days. All positive results were confirmed by a second test with reagent strips and then given blood analysis for confirmation of diagnosis.

Results

757 children were screened over the course of a month. Six more children with phenylketonuria were located, in addition to the two children previously identified. This total closely approximates the predicted institutional prevalence. There were four boys and four girls.

The Phenistix gave strong color identification in all eight cases. The confirming fluorimetric analyses revealed a range of 13 to 41 mg. per cent.* The normal range for blood phenylalanine is from 0 to 3 mg. per cent.

It is interesting to note that all cases were of Caucasian heritage. No case was found among the Mexican, Indian, or Negro children who comprise 37.6 per cent of the institutional population.

The chart makes a comparison of physical characteristics among the identified children.

Discussion

As a result of this study it was decided, as a matter of routine, to test all new admissions for phenylketonuria. It was considered important to explain the diagnosis, nature and inheritance of the disease, and the prevention of mental deficiency in future offspring. The importance of acquainting the family physician or obstetrician with the presence of phenylketonuria in the family is to be stressed. Any newborn in the family should be immediately and repeatedly tested for the disease, and feeding with a low phenylalanine diet should be instituted promptly if the tests are positive.

Previous research has shown that there is little advantage in trying to maintain children the ages of those found in our study on a phenylalanine-free diet in an attempt to cope with the mental deficiency[10]. In these cases the damage has been done. However, there is reason to believe that in some cases the alleviation of symptoms such as eczema, hyperactivity, and seizure activity may justify the strict dietary regimen[1,10,11,12]. Consequently, the eight children have been placed on a commercially produced diet for phenylketonuric patients to ascertain its effectiveness in alleviating the previously noted concomitants.*

*This service was provided by the Diagnostic Laboratory, Phoenix, Arizona.

Summary

THE PURPOSE of this study was to determine the incidence of phenlyketonuria at the Arizona Children's Colony. A review of the literature revealed that there are several reliable tests which can detect the presence of this metabolic disorder. Ferric chloride reagent strips were selected for the screening phase of the study and the fluorimetric method was used for confirmation of diagnosis and to provide an accurate quantitative analysis of the phenylalanine blood level.

Eight phenylketonuric patients were dicovered—all of whom function in the profound range of mental deficiency. A low phenylalanine diet has been prescribed to determine if this will result in any alleviation of concomitant symptoms.

Due to the hereditary nature of phenylketonuria, parent advisement has been undertaken in the hope of preventing further deficient children in the families of our patients.

It is recommended that all new born infants be tested routinely for phenylketonuria.

*The trade-name for this diet is Lofenalac, which is prepared by the Mead Johnson and Company of Evansville, Indiana.

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Our Medical School—



Dr. Brewer

SOMEWHERE in this issue of *Arizona Medicine* will be found the inauguration of the DEAN'S PAGE. Through the perspicacity of our editor, Bob Lorenzen, and the willing cooperation of our Dean, Monte DuVal, we have the establishment here of the most invaluable, direct liaison between our medical school and all the physicians in Arizona. To this venture we voice our warmest and sincerest wishes for success in its highest aspirations.

So it is particularly fitting that we turn our thoughts at this time to medical education in Arizona and to *our medical school.* This is easy too, since we have just returned from Boulder, Colorado, and the 1964 WICHE symposium, whose theme was, "The Changing West: Implications for Education and for WICHE." This conference, as always, was excellent with its galaxy of experts, but I came away from it not a little dismayed and confused and concerned.

Probably no one, other than these experts, is really aware of the implications of the geometric progression of knowledge, the explosion of knowledge — not the population explosion with its far reaching effects — that we hear about on all sides, especially in the scientific world. Nor do we understand the demands and requirements it places upon our colleges and universities and institutions of higher learning, or its impact on our economy, or the support needed from the people of our country and the world. Nothing can stop its inexorable, parabolic course, short of destruction of man and his ability to think freely. One thing for sure Arizona and the United States need our medical school.

Over the eleven years of WICHE's existence, a large number of Arizona students has benefitted from the compact, and our legislature has appropriated nearly $1,800,000 for them and is now spending in excess of $250,000 yearly. We have 131 students this year and anticipate an additional 20 next year. What would we have done without the Western Interstate Compact for Higher Education?

From the vantage point of 1964, I can look back over the years of struggle toward Arizona's medical school to my first assignment to a medical school committee by Hilary Ketcherside in 1948. Long years, but laden with activity through a succession of committees, both lay and professional, through the now somnolent Arizona Medical Educational Foundation, the Board of Regents and its activities, the Volker report, the legislative hearings — and WICHE.

These long years can be considered a period of gestation, sometimes bordering on toxemia, but now safely concluded. As hard as those years were, they have provided the firmest of foundations for our medical school in the impermeable amalgam resulting from the thought and care of all Arizona citizenry. To these, laity and medical profession alike, go our kudos in this supreme effort.

But now we are in the intrapartum period and the accouchment may not be any easier. All kinds of new problems will of necessity arise and these must be met and solved with the ultimate in probity and good faith. Intramural problems and relationships in the University are inevitable, and we can confidently expect the University altruistically to look to the supreme success of the medical school. But, by the same token, the medical school must accept its responsibilities to the university, to its stated mission in the teaching of medicine, and to the whole community of our state. These problems are both broad and narrow, but we are delivering a new school with all the potential of the newborn, limited in its greatness only by our vision and intellectual capacity to create.

Extramural problems are alive and afoot. These exist between the school and the medical profession at large, and, for the most part can be encompassed by the worrisome phrase, "town and gown syndrome." A syndrome is a group of symptoms and signs characterizing a disease entity. In this case it must be a mental disease, since it represents the resultant of real or imagined distrust and disrespect between faculty and

practising physicians. Of all the persons who could have been chosen to dispel this fear, I think Merlin DuVal is the best in Arizona. He has brought the problem out in the open all over our wide state and is striving to eradicate it before it can germinate. He is speaking for the faculty and I trust him, and that's half the syndrome. We represent the other half and he has publicly and repeatedly put his trust in us – that should end it, but it probably won't, so I suggest the July 13 issue of the JAMA, pages 113-127 for further reading on the subject.

The rest of the problems are stimulating, even exciting. Consider for a moment the problem of developing the medical library. Initially the thought of starting a new library seems impossible, even with all the funds one could want. Too much important, absolutely necessary, literature is out of print. And today there are 5,500 medical journals published in the world! And if *all* biomedical serials are counted the number increases to 14,000 at least. This is *new* literature. I doubt that any library has all of these, even the National Library of Medicine in Bethesda.

But we must not forget the computer age in which we live. Librarians are busy adapting these machines to our needs and with our fondness for acronyms, we now have the KWIC, BASIC, MESH and MEDLARS systems. MEDLARS is perhaps most important for us to know about at this time. Its complete title is Medical Literature Analysis and Retrieval System. Through it over 1,000,000 references will be stored on magnetic tape to be used in a Honeywell-800 digital computer. Up to 90 complex searches a day can be handled by it, and it can turn out the whole *Index Medicus* in five days in its total compilation and composition. There is no end to the tasks this machine can perform almost in the twinkling of an eye. And Xerox machines can reproduce whole books if necessary. There is no doubt that the medical world of the United States is heading toward the most complete exchange of medical literature the world has ever known and our school can be a part of the whole vast network.

Then there is the curriculum which will have to be accepted by the Council on Medical Education before the school is approved. This sounds prosaic and stereotyped but far from it. Curricula are under constant study and research as I have well learned in my contacts with WICHE representatives. Medical education is far from static and the methods used on us years ago would be hopeless in today's teaching environment. Many of us remember the argument over vertical versus horizontal curricula back in the old days when we wanted to try a two-year school, like New Mexico now has. But we have a *new* school and new concepts are in order, concepts which would never be possible in any already established school. I know that all sorts of things are percolating in Monte DuVal's head in this regard right now. Perhaps he will discuss some of these in his "Page".

There are no medical school buildings in Tucson today. No physical plans are ready yet, but they will be started within 90 days, I believe. These plans will not be easy either and will require careful joint planning all along the way. There is about $2,600,000 in the medical school kitty so far. This can be matched about 1.6 to 1.0 taking into consideration various ratios available for different areas such as research and teaching. This suggests to me the need for a revival of ARMA's contribution to AMA-ERF earmarked specifically for the Arizona Medical School. Such contributions pay for essential services and equipment with no strings attached. Every cent goes to the school and not one penny for administrative costs. And as F. J. L. Blasingame, M.D., once said, "It proves to American industry and other sources of funds that the physicians believe in the foundation and its programs." In Arizona it also means we believe in medical education within our state boundaries, that we support our medical school with our dollars as well as our good will, that we are united behind our school.

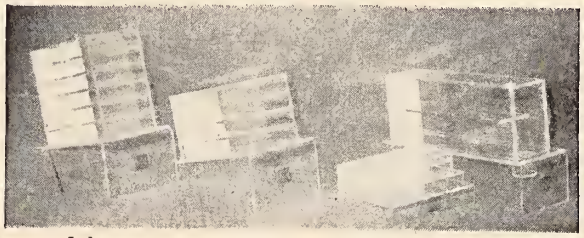
We are a privileged group to have participated in the gestation period of our school. Its accouchment cannot be handled by the Dean alone, he must have help at any and all times for a successful delivery from all of us. And we will look back in the history of medicine in Arizona at the antenatal days of our school with its first class of Arizona doctors with greatest pride, because we did it.

Lady Bird Johnson dedicated a dam somewhere out here in the West the other day and she caught "the spirit of the West." She wound

up by saying, "It has been the spirit of adventure which made bold pioneers and brave frontiersmen — the spirit of optimism which caused men and women to dream big and build hig." This applies to our medical school; we should dream big and build big. Easterners and Mid-Westerners praised the higher-educational systems in the West within the past week in Boulder. And we will hear the same praise of *Our Medical School* some day.

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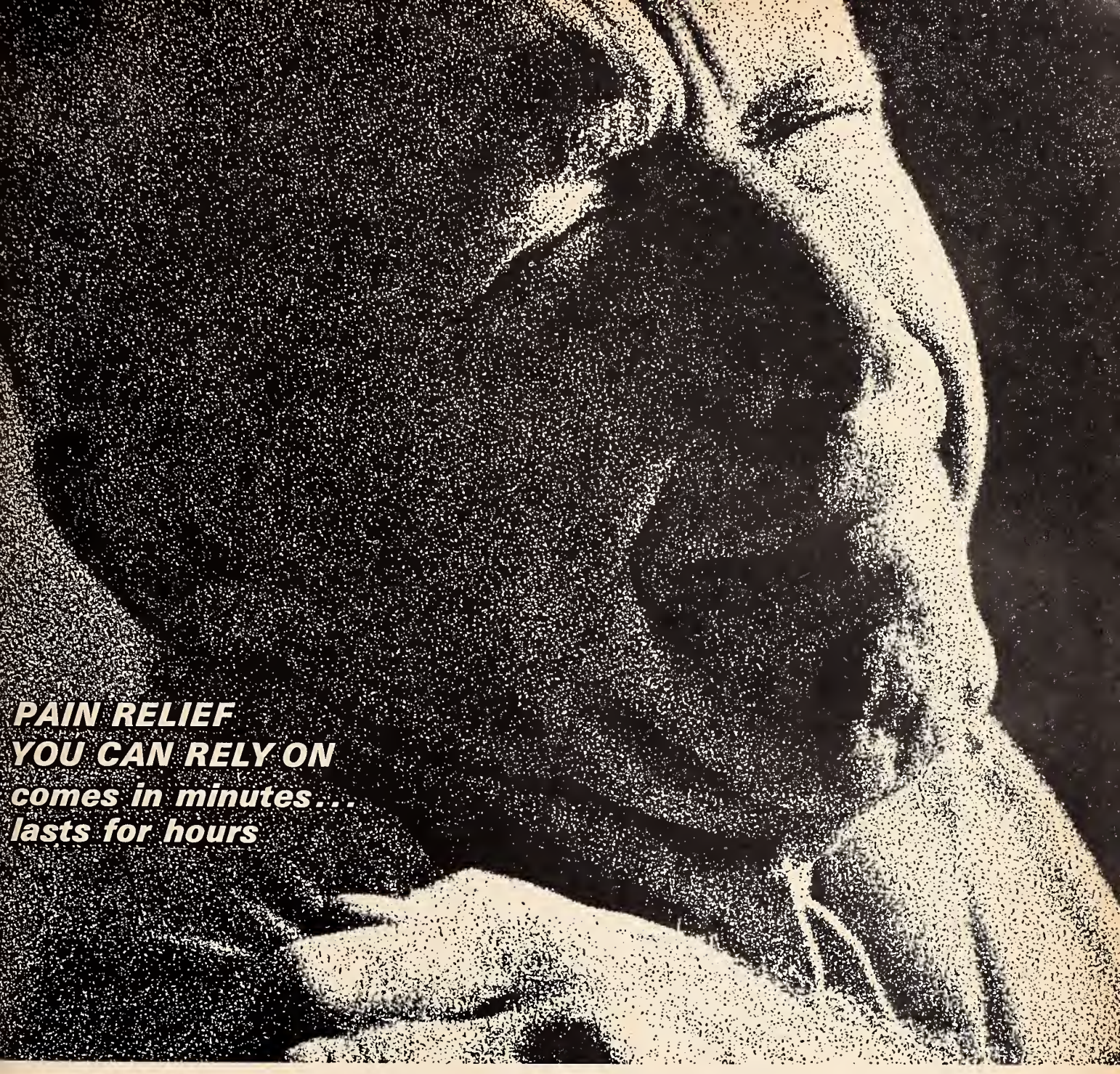
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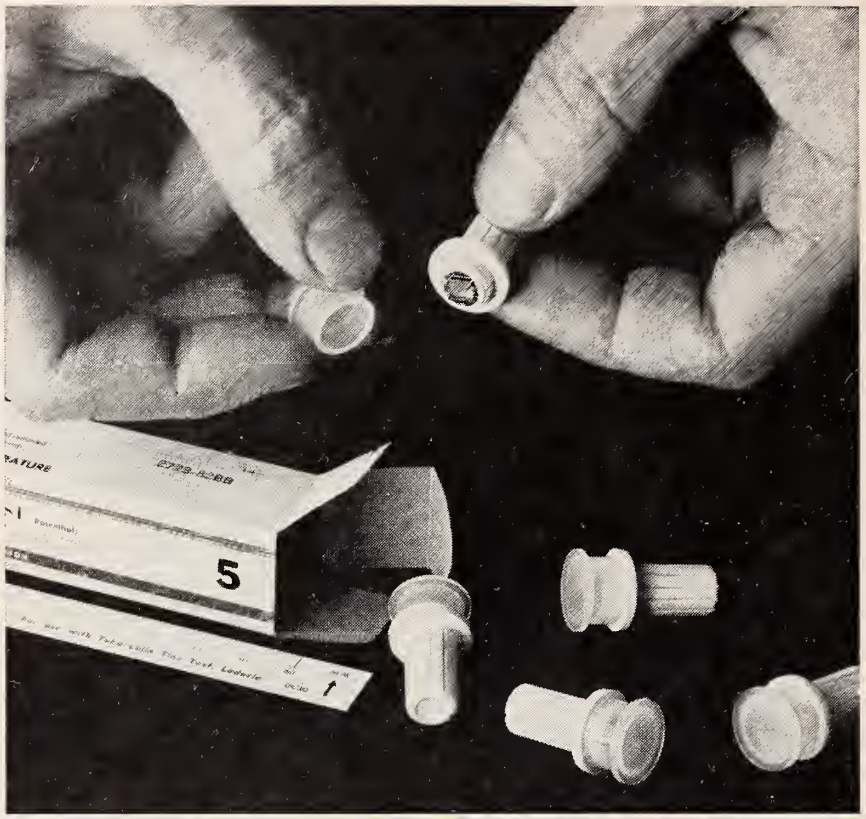
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The Man Bitten by a Dog



Dr. Lorenzen

SINCE 1945 the American people have given over $110,000,000,000 to ninety-six countries in foreign aid. Some of this was necessary and advisable both from the humanitarian and the political point of view immediately following the end of World War II.

In recent years, however, we have often been told that it is necessary to give aid even to unfriendly countries to keep them from becoming more hostile towards us or to improve the image of the ugly American. One is reminded in these cases of the fable of the old slave, Aesop, when he told of the man who having been bitten by a dog was going about asking who could cure him. One that met him said, "Sir, if you would be cured take a bit of bread and dip it in the blood of the wound and give it to the dog that bit you." The man smiled and said, "If I were to follow your advice I should be bitten by all the dogs in the city."

He who proclaims himself ready to buy up his enemies will never lack a supply of them.

Robert F. Lorenzen, M.D.
Editor

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2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
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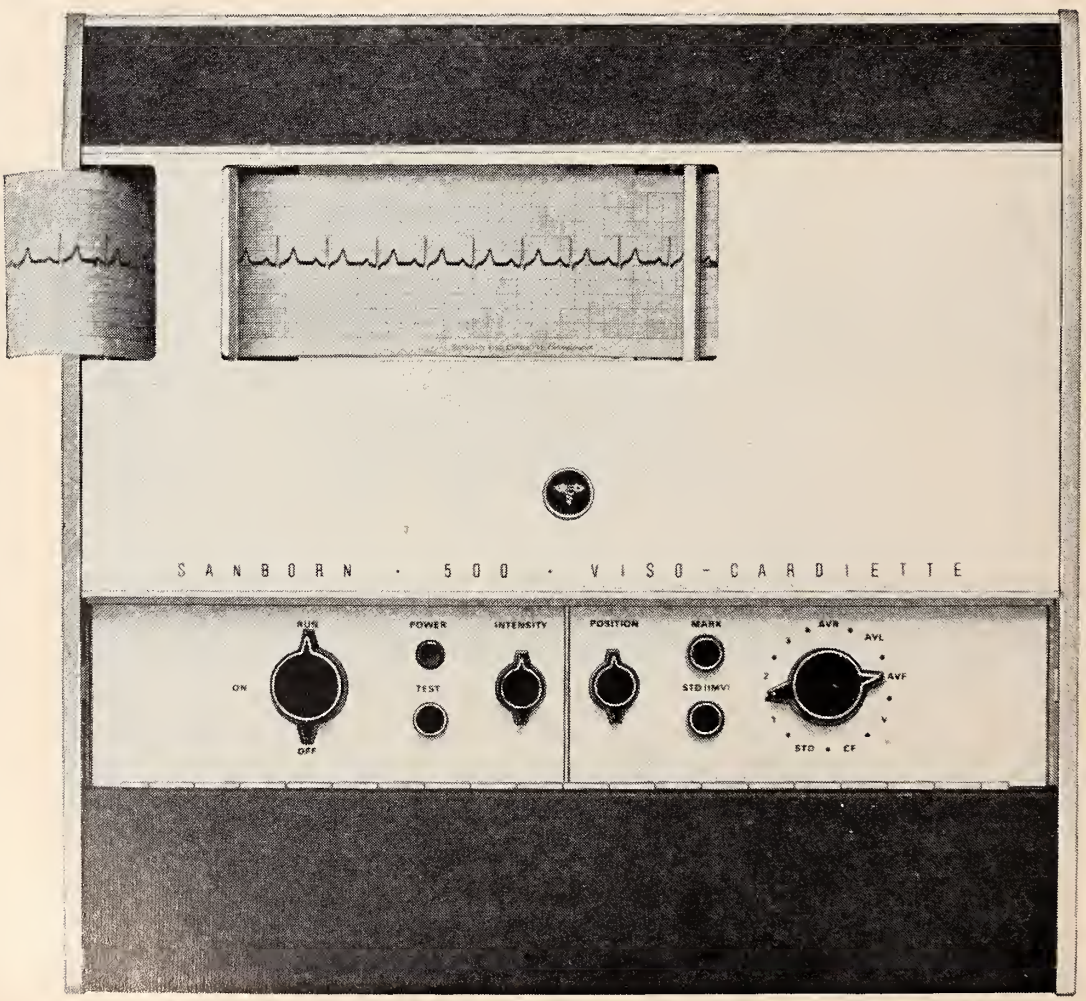


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The Doctor's Child

by

William B. McGrath, M.D.

THE offspring of professional men are rather too commonly afflicted with tension. Some of the children internalize it. They become anxious and they fail to attain what should be quite effortlessly within their reach. Others act out their protest in erratic or delinquent behavior.

In either case the counsellor's advice is almost stereotyped: Do not put the child under so much pressure. The parents reproach themselves and review their attitudes toward the child. They try to be more patient, more reassuring; but they are not fully convinced. And maybe they have missed the point.

Their particular relationship to the child is probably not depriving or oppressive. It is their example-in-general which is so subtly burdensome.

The professional man and his wife have long since acquired industriousness, self-discipline, unrelaxed conscientiousness. To the exemplary display of such traits the child is relentlessly exposed. He is not and should not be ready to emulate them. His instincts tell him that he should still be a bit irresponsible, spontaneous and playful. No matter how tenderly we talk to him or treat him, he will be judging his unformed character by the standard of our rigid example. If the dilemma is explained to the child and really shared with him, his developing confidence need not be impaired.

One only imparts confidence by confiding.

The example set by the professional man — again too commonly — has its special and ugly component. The professional man is conditioned always to see what's wrong. Such is his posture, his primary orientation.

He takes it home with him, this critical attitude. When it is directed toward the members of his family, they at least can defend themselves, even in silence. When it is universally diffused it becomes more destructive.

Listen to the supper table conversation. About all the child ever hears are our derogatory remarks about everything and everyone. We are sarcastic toward the neighbors, the teachers, the lawyers, the clergymen, the government. We are marvellously skilled in denuding our friends and demeaning their motives.

Even if one were capable of beating a dog savagely, one would at least not do it in the presence of a child. Yet we persist in our verbal vivisections with the terrible cruelty of the righteous.

By our endless carping we convey to the child that the adult world is full of nothing but counterfeit establishments and people. No wonder he gets discouraged or rebels. If he has the intelligence to repudiate the pharisaic values which we express, he has no place to go.

There is a remedy, of course. But one has to overcome a surprising resistance to its application. It is to let the child occasionally overhear our unstinting praise of someone other than ourselves. It is to let the child feel our unqualified acceptance of the groups and institutions which comprise the outside world. It is to let the child learn that we usually impute to others the virtue of doing-the-best-we-can, as we claim that virtue for ourselves. The child can then believe that all of us will give him credit for doing the best he can.

The professional man brings home another habit which may prove hurtful to the child. A lawyer or a minister or especially a doctor has trained himself to be just a bit impersonal toward the vulnerable individuals who engage his interest. Professionalism is almost defined by the ability to discriminate between familiarity and friendliness. In the household then, there may develop an institutional kind of affective starvation. The son or daughter will sorely miss the reassuring experience of familiarity. He or she should not be denied the enduring terms and unearned gestures of personal affection.



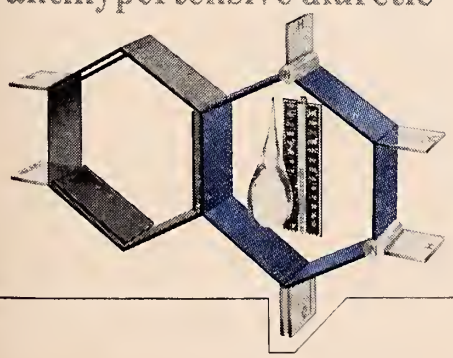
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1. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. J. Amer. Geriat. Soc. 11:945 (Oct.) 1963.

2. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, California, Nov. 25-28, 1962.

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Dr. Waldron

Disaster Medical Care — Part III

by
Carl W. Waldron, M.D., D.D.S., F.A.C.S.

A considerable rearrangement of hospital facilities may be necessary to take care of expansion for disasters. The X-Ray Department, Operating Rooms, Clinical Laboratory, Central Supply and kitchens might be the only sections reserved for their primary purposes. Lobbies, lounges, dining area, conference rooms and class rooms might of necessity become wards.

The types of disaster injuries will determine the activity of the various departments and planning must be flexible to, for example, take care of large numbers of burn patients and but few victims with other wounds. In other disasters such as tornadoes or wrecks, burns might be rare and fractures of common occurrence — furthermore injuries may be multiple such as a severe burn a fracture and shock which may then be the condition requiring immediate attention. For these reasons the health personnel of the hospital should have a sufficiently broad training to function under supervision in any department. The basic training is the Medical Self-Help Course to be supplemented as indicated by instruction by department heads and technicians. Most hospitals do not have a sufficiently large administrative and working staff to adequately meet the problems of disasters. Auxiliary personnel should be enlisted from the community and trained as noted and subsequently oriented and assigned.

The shock ward should be close to the BURN AREA or combined with it as the patient management is similar. Larger rooms are preferable so that a limited nursing staff may watch the casualties more carefully, recognize worsening conditions and take immediate steps to control them. Frequent blood pressure and pulse readings with **time recorded** are practical guides and more useful than occasional readings for determing the progress of the condition of the patient for the trend of blood pressure changes is as important as the blood pressure itself. Recognition of the types of injuries and situations likely to cause shock may make possible its prevention or control with prompt treatment. One or more nurses in the shock area should be responsible for keeping a close watch on the condition of the patients in order to prevent, if possible, any going into irreversible shock.

Hidden bleeding may be severe and occur suddenly in cases of fractures with torn muscles and vessels, abdominal or thoracic injuries, all important factors in the production of shock. Constant watchful supervision must be maintained to detect signs of hemorrhage. The body is thrown into a defensive state usually with vasoconstriction which initially may be accompanied by a normal blood pressure due to an increased pulse rate and a decreased amount of circulating blood. This in turn produces a hypoxia which interferes with certain body functions. This initial normal blood pressure reading is most deceptive and will surely drop unless the probability of subsequent shock due to an increased permeability of the capillaries is recognized. Frequent blood pressure and pulse readings are most essential guides to therapy. Laboratory studies and hematocrit readings are desirable if facilities and time permit.

BURNS — The number of burn casualties obviously depends upon the type of disaster, though severe burns may complicate other injuries sustained in a wide variety of accidents. Experience has shown that a dozen or more severe burn cases can overwhelm a large hospital if it does not have a well organized burn department. Death from burns may be due to airway obstruction following burns of the face or neck, particularly when steam or fumes have been inhaled. Prophylactic tracheostomy with

subsequent meticulous aspiration and care of the tube is essential. Extreme caution must be taken in the administration of fluids in case of inhalation burns of the respiratory tract in order to avoid pulmonary edema. Shock is the principal cause of death in burns and the probability of survival is considerably reduced in disasters, and in sorting many patients must be placed in the Expectant category if burns are extensive and of 3rd degree. The Baxter Laboratories Fluid Calculator for 2nd and 3rd degree burns is a most useful guide in treatment. The percentage points of body surface burned is appraised rapidly by multiplying the surface of 3rd degree involvement by 1 and the 2nd degree by ½. A complete 3rd degree burn of the anterior chest and abdomen 18% x 1 = 18 plus a six per cent 2nd degree burn of one arm 6 x ½ = 3 which added to 18 would be a 21% points burn of the victim. There is a tendency to over-estimate the extent of burns. In disaster conditions, 40% points would be considered lethal and the victim would be classified as Expectant when sorted. Blood is required in extensive 3rd degree burns and in small amount in extensive 2nd degree burns. Greater reliance is placed on plasma, colloid, electrolyte, saline, Ringers and Dextrose solutions.

Complete records of fluid intake and the measurement of output of urine, hourly if possible, by means of a self-retaining catheter are essential to determine the progress and to control the Fluid Replacement Therapy. Urinary output should be kept at 30 to 50 cc per hour and if below 15 cc a significant increase may usually be secured by rapid infusion of 1000 cc plasma or plasma expander by means of a polyethylene tubing inserted into the femoral vein LIFE LINE. Renal failure must be considered if urinary output does not respond to these measures and salt and fluids restricted until the kidneys recover their excretory function. As soon as the casualty becomes stabilized, usually the 4th to 6th day — the catheter may be removed. When accepted without emesis, oral fluid intake is employed.

Burn wounds should be initially and gently cleansed with soap, water and saline to remove dirt and loose burned tissue to control infection. The exposure method of care has found great favor, but care should be taken to avoid subsequent infection by air born organisms. Sterile or clean sheets may suffice — contacting burn surfaces should be kept apart, cotton gloves are useful for hands and fingers. Sterile burn dressings if available, are most useful for extensive burns of the trunk and extremeities. An appreciation of the magnitude of burn therapy measures is the fact that one 40% second degree surface burn (20 points) has been estimated to require 42 tanks of oxygen, 36 pints of plasma, 40 pints of blood, 104 pints of fluids, miles of gauze where dressings are indicated, drugs and the services of three nurses and two physicians. Skin test is made for tetanus antitoxin (T.A.T.) and administration of 1500 units; or if patient has had tetanus toxoid give a 1 cc booster dose.

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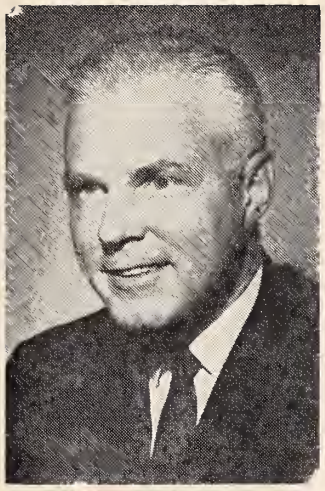
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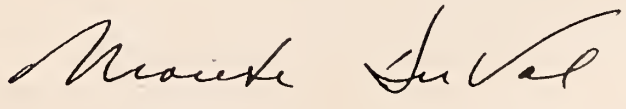
A profession can be distinguished from a trade by three criteria. First, it serves society vertically in time rather than horizontally; second, it actively seeks to create new knowledge in its own field; and third, it perpetuates itself by forwarding its cumulative knowledge and skills into each succeeding generation. Although there has been considerable variation in the degree to which these obligations have been met by the various professions, in general, medicine has been particularly conscientious and attentive to these responsibilities. One result of this is the esteem in which our profession is held by society.

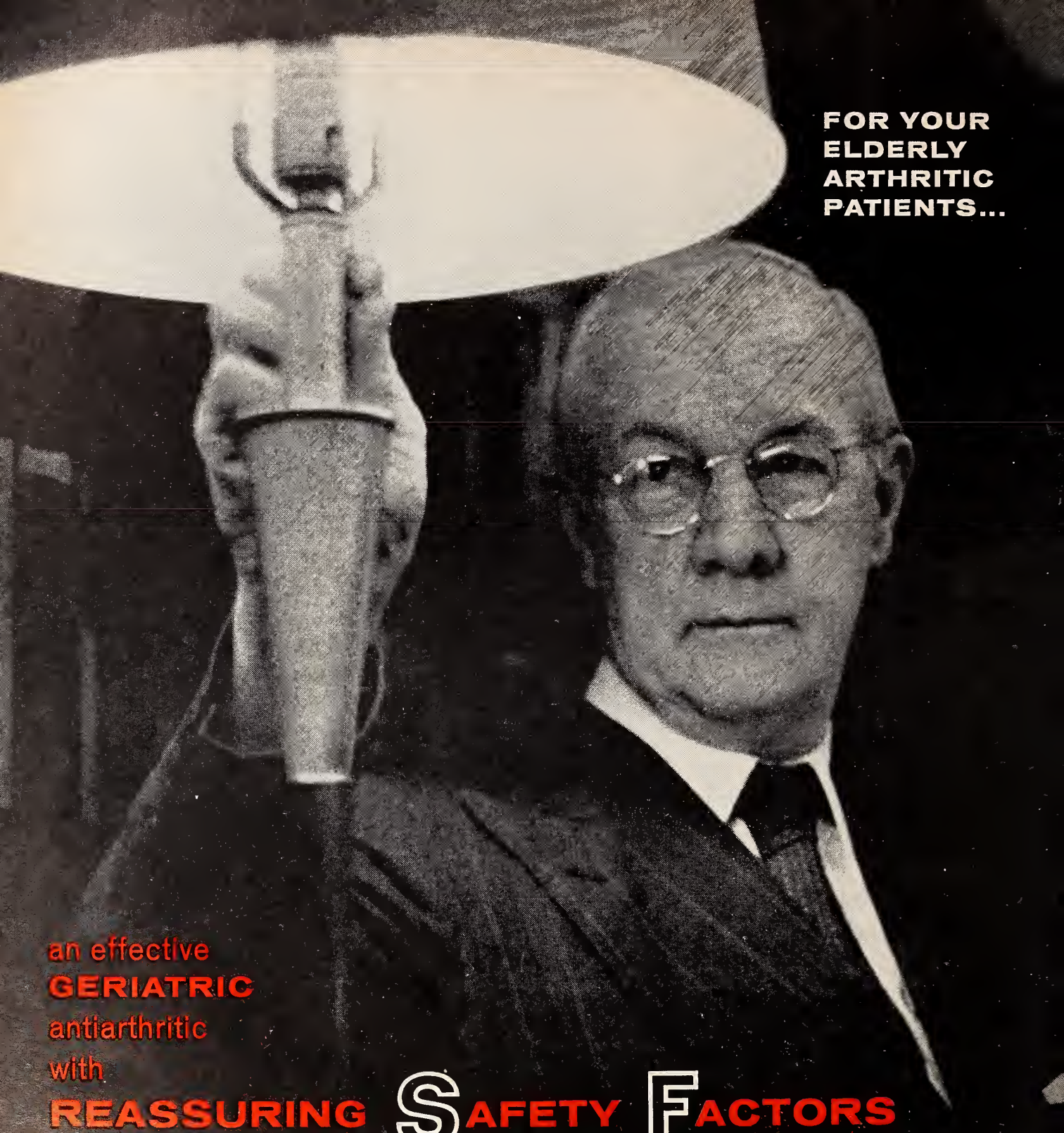
Recently, the doctors in Arizona have fulfilled their own professional obligations by giving leadership and counsel in favor of the decision to inaugurate a program of medical education. And while unanimity of opinion was not always present, with regard to how or where such a program could best be accomplished, at no time was there substantial disagreement that the decision to start was a proper one. Now, united as we are in a collective effort to begin, success seems assured.

In response to the authorization which the Regents have granted to the University of Arizona, a commitment has been made that the medical school will be oriented to the needs of all of the citizens, students, and doctors in the state. Indeed, every aspect of planning has proceeded, and will continue to proceed, with this commitment in mind. As a start, steps have been taken to contact all segments of the practicing profession so that, with the passage of time, effective channels of communication can be developed between the school and the profession. These channels will become an important instrument in helping the College of Medicine develop and maintain an awareness of the constantly changing pattern of social, community and medical needs of our people as they are interpreted by our profession.

The response to this approach has been excellent thus far. In fact, personal visits with the memberships of all but two of our fourteen county medical societies have already yielded at least three definite impressions. First, there is a widespread sense of pride and interest in the developing College of Medicine among the members of our profession. Second, there is an impressive degree of thoughtful concern about the projected shape and mission of the school. Third, many individual physicians have expressed a strong desire that the developing medical school will be properly supported by the state legislature so that it can do its work effectively, and so that it can avoid those problems which arise so frequently within a medical center setting when state support is inadequate. If these views continue to prevail, it follows that the doctors in Arizona will earn an additional measure of respect for the sincerity with which they will have fulfilled their obligations as a profession.

Of the many problems involved in starting a College of Medicine, the great majority are probably of little interest to the members of the State Medical Association. Some of them, however, are very important problems relating to the philosophy of undergraduate medical education, graduate training and continuing education. Their solution will not be possible without thoughtful and deliberate consideraiton by all of us. As a step toward making this possible the editorial staff of ARIZONA MEDICINE has generously invited the administration of the College of Medicine to review and develop these problems in its pages and will be presented and discussed on this page. By this means, each member of our STATE MEDICAL ASSOCIATION can remain informed, and can give his personal attention and deliberation to those problems in which he is interested. As a result, he may be more encouraged to communicate his thoughts and opinions to us for the benefit of us all.





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EDWARD J. GOTTHELF, M.D.

1889-1964

WITH the sudden death of Doctor Edward J. Gotthelf from a coronary occlusion on May 19, 1964, an era has almost passed by us. It marks the exit of the pioneer doctor in Arizona, the horse and buggy doctor of the southwestern frontier and, in this instance, culminated a useful, interesting life which included an active practice, public service, experience in a major war, a skirmish battle in Mexico, a life of interesting hobbies, with his services warranting commendation from both the governments of France and Mexico.

Doctor Ed was a product of pioneer stock. His grandfather, Doctor Lewis Gotthelf, was born in Frankfurt, Germany, and immigrated to America in 1849, four years after William Worrall Mayo, father of the Mayo brothers, had sailed to America from England. He homesteaded and practiced medicine in Ohio and South Dakota. Of the next generation, Doctor Ed Gotthelf's father was Edward John Gotthelf who homesteaded in Minnesota, South Dakota, and, in his later years, moved to Tucson where he died at the age of 92.

Doctor Gotthelf was born in St. Mary's, South Dakota on August 3, 1889, his youth being spent on his father's farm. Young Ed attended the Sioux Falls, South Dakota high school where he was a member of the football squad and played in the school band. From there he continued his education at the University of Illinois and obtained his M.D. degree in 1914, taking postgraduate work for a short period of time in Germany which was the center of medical learning at that time.

In 1914, Doctor Gotthelf became associated with the late Doctor C. A. Thomas in an office on Pennington Street. Having practiced in Tucson for over a half century, he and Doctor S. D. Townsend had practiced in Tucson longer than any other physicians at the time of his death. During the First World War, he served overseas in the United States Medical Corps as commanding officer of an ambulance evacuation company and was later promoted to the rank of major. He was awarded the French Legion Citation for his wartime endeavors, and for his services to the Selective Service Board in World War II he was given the Selective Service Medal from the Congress of the United States.

On returning to his practice from World War I, he served twelve years as county physician. In his capacity, he found that Tucson had not lost all of its wild and woolly qualities, seeing the seemy side of the town with its too-frequent murders. Once he was called to Greaterville after a murder and was shot at by the criminal who escaped.

J. F. Weadock writes in his "Desert Notebook", "The county physician at this time got little if any sleep over the weekends and the police considered that Saturday wasted which

didn't bring a shooting or cutting fracas. "Doc" Gotthelf attended most of them and got a reputation for being a neat hand with a needle after a victim of a knifing was brought into St. Mary's Emergency Room or the police station, depending upon the extent of the surgery needed. One night there came a call for the doctor's help from a Mexican woman in a small adobe home in the southwest side. She was in labor and the midwife informed the doctor that things were 'muy malo.' Accompanied by his nurse, Miss Helen Bocock, 'Doc' took off to the scene of the trouble. He arrived and found that the midwife had not overstated the case. The woman was in real trouble, if not given immediate aid, neither she nor the child would live. 'Doc' threw off his coat and with Miss Bocock's help went to work. He had neither the time nor opportunity to call an ambulance. While 'Doc' was busy attempting to get the new citizen into the world alive and not lose the mother in the process, the father came blundering in, more than a little intoxicated. All he saw was a man in his bedroom, bending over his wife who was practically nude, while the woman moaned in pain. Grabbing a long butcherknife from the table, he started toward the unaware doctor, ready to carve him into 'jerky'. Nurse Bocock who was an able and husky woman, collared the bewildered husband as he went by. She tossed him through the door into the street, locked the door, and resumed work. It was only after mother and son were doing fine that 'Doc' found out how close he came to needing some stitching himself."

During the 1921 smallpox epidemic, he vaccinated 1,800 persons at Armory Park one Sunday. He also administered the first gas and spinal anesthesia given in Tucson.

"The Battle of Mesquite, a border skirmish, was fought in 1929. Because of the need for doctors, Doctors Gotthelf, J. B. VanHorn, and J. B. Norris took off for the battlefield. They arrived late in the afternoon in time to assist the twenty-three wounded men who had been left on the field of battle, some of them seriously hurt. They rendered first aid and did what they could in the field, then commandeered a truck and hauled the seriously wounded to Tucson. One that Ed operated upon was a soldier who had been hit in the abdomen and had twenty-three perforations in his intestines. After about six weeks in the hospital in Tucson, the Mexican was released and returned, cured, to his home in Mexicali. The Mexican government through its ambassador in Washington wrote a letter of commendation to the three Tucson physicians. He also must have assumed all bills had been paid for he sent no money. Each doctor did get a rifle, which the Mexicans had thrown away, as a souvenir of the battle."*

He was an avid sportsman. Hunting quail and dove were his specialties, and there was hardly a piece of land around Tucson he had not walked over at one time or another. His accumulation of guns was remarkable and beautiful, both antiques and new. His collection of fishing equipment was large enough to start a sporting store, and some years past was on exhibition in the novel bar in his home, containing slot machines, a brass rail, and all the trimmings, including cuspidors. Here was one of the most interesting aggregations of memorabilia I had ever seen in a private residence. He was an avid fisherman, like his spiritual predecessor, Isaak Walton, pursuing both trout fishing in the White Mountains where he was considered somewhat of a pioneer in the fishing of these streams, and was a hunter of the denizen of the deep azure sea on the west Mexican coast.

In the more recent past, Ed had traveled widely. He visited his son who was stationed in the Army in Germany, and more recently made two trips to the Orient. I visited with him on the day he was leaving to attend the fiftieth anniversary of his medical school graduating class. His zest for life was apparent — he talked of more fishing and his ambition to see again other parts of the world. On returning from this anniversary, he boarded a nonstop airliner from Chicago to Tucson and was stricken, suddenly ending his full and interesting life. I believe this was the way he would have had it could he have had a choice.

Ed was a fifty-year member of the Elks Club, a member of the Lions Club, American Medical Association, Pima County Medical Society, MO Club, a member of Nu Sigma Nu Fraternity and had received a Medallion of Merit from the University of Arizona on its seventy-fifth anniversary.

*From J. F. Weadock's "Desert Notebook".

He is survived by his widow, Jean; a son, Major Edward J. Gotthelf, III, of Huntington Beach, California; a daughter, Mrs. Barbara Davis, of Albany, Georgia; and seven grandchildren.

Just before I entered the church on the day of the funeral, a woman stepped into my path, weeping with grief. She cried, "Thirty years ago he saved my life — now he is gone." Yes — one of our state's early medical citizens is gone and greatly missed. His best epitaph will be in the memory of those hundreds of patients remembering the loyal and unselfish service he had given them in the past fifty years. His was a life of faithful service to his fellowmen whether they be of high or low degree; poor or rich; black, yellow or white.

H. D. Cogswell, M.D.

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Correspondence

Editor's Note: Feeling that a candidate's comments on issues affecting physicians and their patients would be of interest to Arizona doctors, we wrote to each of the gubernatorial candidates requesting a statement for publication in ARIZONA MEDICINE.

Reprinted below is my request followed by a statement submitted by Richard G. Kliendienst. Republican candidate for Governor. The Democratic candidate did not reply.

Dear (Candidates name)

Congratulations on your recent primary victory.

As editor of the journal of the Arizona Medical Association I am requesting that candidates write a short summary outlining their position on issues of particular interest to physicians and their patients in Arizona. I would like to publish your comments in the October issue of Arizona Medicine.

We would be interested in your views regarding any existing problems and your proposal for their solution. Such items as hospital and physician care, plans financed through Social Security, mental health problems, compulsory or voluntary health insurance plans, the Medical School in Arizona and any other problems relative to our State in the field of medical care would be of particular interest.

We hope that you will favor us with a reply. In order to publish your remarks they must be in our hands no later than Monday, September 21st.

Sincerely yours,
Robert F. Lorenzen, M.D.
Editor

Dear Doctor Lorenzen:

I congratulate the medical profession of the nited StatUes. As a result of their efforts and learning we enjoy the highest standards of medicine and medical care in the world. We must always strive to perpetuate a climate of government that will permit the growth and development of private medicine. Modern experience has demonstrated that when the members of a medical profession are free to pursue their calling and not fettered by many government dictates they amply reward society by continuously improving the standards of patient treatment and by enlarging the frontiers of medical knowledge.

There are bound to be in our state, as in any other state, some less fortunate individuals who do not have health insurance and are unable to pay for necessary medieal care. Many of these are now taken care of through the various county hospitals and have been so for many years. The county taxpayers in effect furnish the facility and many local physicians provide their services for a nominal fee. There are also outpatient clinics at the great private hospitals where medical help is given free of charge. For catastrophic situations such as severe mental retardation or mental illness the state should and does provide facilities. nder ouUr private enterprise system no individual is denied medical care for lack of funds.

Several years ago Congress enacted the so-called Kerr-Mills Act, which provided federal grants to states which wished to expand health assistance to elderly citizens of limited means. There is thus available to us the means of expanding the facilities and services which have previously been furnished to needy elderly persons in our midst. As of early this year, thirty-four states had enacted laws authorizing participation in this program. In our state Republicans in our legislature have led the effort to pass enabling legislation. I favor wholeheartedly the adoption of such legislation in Arizona.

The reasons why I prefer voluntary programs, supplemented by Kerr-Mills aid, over compulsory federal medicare, are several. Reliance on voluntary health insurance programs, together with assistance to the needy through the traditional local facilities and Kerr-Mills participation, preserves intact the values of the present system. Voluntary private initiative is encouraged; government activity is primarily at the state and local level; the Social Security program is not over-loaded or put in financial jeopardy; and there is no threat to the physician-patient relationship.

On the other hand, the "Medicare" proposal of the Kennedy-Johnson administration (the benefits of which are limited to hospitalization) would seriously damage or threaten each of these values. It represents an invasion by the federal government into another area of our lives without any real showing of necessity for such an invasion. The proponents of "Medicare" are obsessed with the notion that there is something wrong about making government funds available on a basis of need. Because *some* of our citizens are unable to provide medical care for themselves, advocates of "Medicare" say that the federal government must provide medical care for

all of our citizens, so that there will be no "stigma" attached to such services. This is indeed a case of the tail wagging the dog.

I say let us continue the tradition of providing medical care for those who cannot provide it for themselves, but let us recognize that the basis for help here is need. By so doing, we may make available to the needy what they cannot get for themselves while at the same time encouraging further development of voluntary programs to hel pinsure those who are able to provide for themselves. Both assistance for those ingenuine need and the encouragement of private initiative are in the best traditions of our government.

Mental health is a question which has concerned various committees and study groups in and out of government for some time. I am aware that, at Gov. Fannin's charge, extensive reviews are currently being made by a citizens' group. I would hope that suggestions for any future planning emphasize direct supervision by properly qualified medical personnel.

The decisions about the location and planning for the Arizona medical school have been confided by the legislature to the Board of Regents. I believe that the Board of Regents is the appropriate body to make these decisions.

Richard G. Kleindienst.

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NEW 'FAMILY DOCTOR'

Patients With Minor Ills Jam Emergency Rooms, Drive Up Hospital Costs

A doctor in the emergency room of New York City's Roosevelt Hospital bends over an examining table and carefully removes wax from the ear of a 17-year-old secretary.

The doctor's routine endeavor points up a worsening medical problem that has nothing to do with ear wax. At Roosevelt and many other hospitals across the nation, the emergency room, once solely an accident and crisis ward, is becoming a kind of community health center for treating minor ills ranging from ear wax to head colds. A survey by the American College of Surgeons, in fact, shows only about 45% of the emergency-room cases handled nowadays are really emergencies at all.

"We're becoming a substitute for the family doctor," declares Dr. T. Scudder Winslow, Roosevelt's director of emergency service.

Hospitals, of course, are free to turn down requests for emergency-room treatment. But, even if it is finally determined no emergency exists and the patient is sent away, an examination normally must be made first. And this naturally eats up time and manpower, and it puts a strain on emergency room facilities.

The consequence: Hospitals find themselves forced to spend hefty hums, money they can ill afford, to strengthen their emergency departments. And, to cover at least part of the expense, they are increasing charges not only for emergency room treatment but also for most other services. So much is this the case, in fact, that many authorities cite spiraling emergency-room costs as a prime reason the bill for a day's hospital stay has tripled, on average, in a decade.

STRAINED FACILITIES

The strain on emergency facilities can't be pinpointed with any over-all statistic. But talks with individual hospitals leave no doubt about the trend.

San Francisco's General Hospital, for example, handled 47,896 cases in its emergency department last year, 75% more than 10 years earlier. Some 36,000 persons visited the emergency facilities of Hartford Hospital in Hartford, Conn., last year, nearly three times as many as in 1953. The institution has been forced to enlarge its emergency department three times since the end of World War II. A relatively tiny hospital in Springfield, Vt., handled 1,820 emergency-room cases last year, up from only 628 ten years earlier, and, according to Thomas F. Hennessy, its Administrator, "We're budgeted for 2,600 in 1964.

Why are so many patients turning to emergency rooms when they have any medical worry?

Dr. Robert H. Kennedy, in charge of an American College of Surgeons group studying the problem, suggests one explanation: "Something happened to medical practice following World War II. House calls became rare. Physicians disliked coming to their offices except during regular hours, so they were frequently unavailable nights, weekends, holidays and the weekly golfing afternoon."

As a result, Dr. Kennedy contends, many patients "realize their family doctor might not have office hours" and when any sort of ailment afflicts them they go directly "to the emergency room of a nearby hospital." Other authorities report that some doctors go so far as to tack notices on the office doors when they are away, suggesting any callers go to the emergency room of such-and-such a hospital.

DWINDLING "GP" SUPPLY

Compounding the situation, some authorities contend, is the nation's dwindling supply of general-practice doctors. The American Academy of General Practice lists 68,326 "GPs" currently, down sharply from 95,526 fifteen years ago. It's true that many of the duties of these family doctors have been assumed by various specialists. But, it is argued, specialists can't possibly fill the entire void.

Adding still further to the problem, hospital administrators say, is the fact Americans move from city to city more often today than 10 or 20 years ago. "Many newcomers to a community don't even think of a doctor until they get sick," says one administrator. "Then, rather than search for a physician, they come to the emergency room."

And, on top of everything else, the emergency

room appears to be turning into a treatment center for the country's swelling elderly population. An increasingly common sight: An old man with a thin, drawn face and a suit that hangs loosely, sitting disconsolately in an emergency room as a doctor says sympathetically: "We'll do the best we can to get you into a home."

One reason emergency departments are so costly to hospitals is simply that a lot of emergency-room patients aren't paying their bills, which normally amount to $5 to $10 per visit.

"It's often very hard to collect from emergency-room people," says Edward Messier, controller of New York's Staten Island Hospital. "Many mistakenly believe this is a kind of service they are entitled to without payment." Roosevelt Hospital, typically, collects only about 30% of its emergency room service bills.

In such circumstances, it's not very surprising to learn that 79 New York hospitals together lose nearly $3 million a year on their emergency facilities. Or to hear from an administrator at Roosevelt Hospital that cutting out emergency services "would make a tremendous difference" in trimming the institution's deficit, which last year totaled $249,295.

Things are fast reaching the point where hospitals are having to launch more positive action than merely trying to make up emergency-room costs by charging more for their other services.

The 88-bed Springfield, Vt., hospital recently began appealing directly to local residents for funds to be used explicitly in the emergency room. Last year the institution asked for and got $32,800.

Many hospitals now require that local doctors, to remain on the staff, man emergency rooms on a rotating schedule. And in some instances doctors actually are abandoning their practices to hire themselves out full-time to emergency departments.

Four doctors in Alexandria, Va., gave up thriving practices not long ago to work exclusively in the emergency room of the community's 304-bed hospital. They guaranteed to man the facility 24 hours a day, all year. The doctors aren't hospital employes, but independent contractors. They carry their own malpractice insurance and are paid from the hospital's yearly allotment from Alexandria for welfare cases, as well as from whatever fees they are able to collect from emergency-room patients.

"The money is at least equal to whatever they are receiving in private practice," says Charles M. Goff, the hospital's administrator.

"It's working out beautifully. We feel we are providing as good, if not better, care in the emergency department as we were in the days when we ran it ourselves."

The Alexandria Hospital also asks all emergency-room patients if they have their own family doctor. If they do, and there is time the family physician is contacted and brought in on the problem. The patients are urged to visit their own doctors for follow-up checks, if necessary

Detroit's Harbor Hospital has just adopted a variation of the Alexandria plan. The hospital hired six local doctors to staff its emergency room 24 hours a day, on a rotating basis. The physicians work once every six days and attend to their private practices the rest of the time.

Tidewater Hospital Council, representing 19 Virginia hospitals, recently distributed a pamphlet stating: "The emergency room is for emergencies. It is not an out-patient clinic for the treatment of colds, flu and other ailments." The pamphlet urges persons with conditions that don't demand immediate attention to call a doctor the next day. The success of the pamphlet is questionable, however. The 498-bed Norfolk, Va., General Hospital, the largest in the Tidewater group, reports no decrease so far in emergency-room visits.

A touchy situation occasionally arises when hospitals hire outside physicians on a full time basis to staff their emergency departments. Competition for patients can occur between the outsiders and local family doctors. Sometimes doctors on the staff of a town's hospital approve a retired Army or Navy physician, for example, only to find the new man is so popular that he ends up drawing their patients away and launching a practice of his own.

The situation seldom occurs in large cities, where most hospitals have round-the-clock teams of young doctors - in - training available for emergencies.

John J. Goldman, Staff Reporter
WALL STREET JOURNAL
Vol. LXXI, No. 29

OPTOMETRISTS SUE AMA FOR 90 MILLION

Optometrists Friday accused the American Medical Association of "creating a monopoly in the eye care field to divert trade to doctors of medicine specializing in the eye.

A suit asking treble damages of $90,000,000 was filed in the U.S. District Court Here.

Also named were 10 Chicago ophthalmologists whom the Midwest Society of Optometrists charged with defaming their profession.

Dr. Cyrus Bass, executive director for the society, a group that has broken away from the Illinois Optometric Association, said in a press conference that AMA is "out to destroy our profession."

"As a result, many optometrists have gone out of business and others have had to take on extra jobs, such as driving a cab or selling clothes."

The suit cites alleged violations of the Sherman Antitrust Act and the Clayton Act by the AMA.

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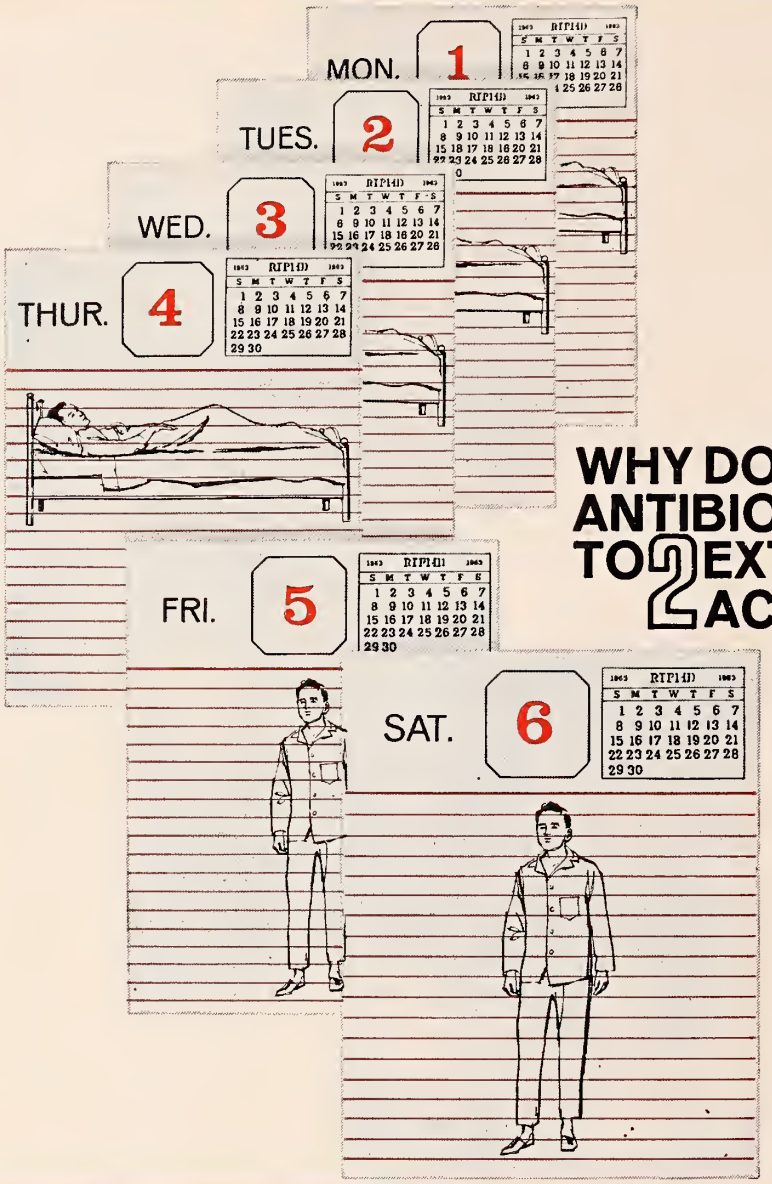
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IT'S THE LAW

1964 marks a new era of medicine in Arizona. The 26th Legislature of the State of Arizona, during its second session, passed the new Medicine and Surgery Act, Chapter 13, ARS, as amended. The Honorable Paul Fannin, Governor, signed it into law on March 16, 1964. It is now the law of the State of Arizona governing the practice of medicine in this state by doctors of medicine.

It was the Board of Medical Examiners' feeling that **Arizona Medicine** readers might appreciate the spotlighting of the important provisions of this new act.

We are all aware of the phenomenal growth of our Great State. Medicine has kept pace. With this new statute it will continue to provide its patients with qualified practitioners and unexcelled scientific medical treatment.

Each Arizona licentiate should find to his advantage a study of the copy of the act that he has received.

Practice Without License

It should be re-emphasized that, under the provisions of this Chapter, the practice of Medicine in Arizona by a doctor of medicine without a valid and subsisting license to do so is unlawful. Some of the exceptions would include the student intern or student resident actively engaged in an approved hospital internship or residency training program who must now be "registered" with the Board of Medical Examiners; a commissioned medical officer in the military or public health service of the United States in the discharge of his official duties; or an out-of-state practitioner holding a license granted by another state, territory, district or country, when in consultation requested by a practitioner holding a license under this chapter. — IT'S THE LAW.

Conduct Reporting

Of special import, each doctor of medicine, The Arizona Medical Association, Inc., or any component county society thereof SHALL report to the Board of Medical Examiners, under oath, any information such doctor, association or society may have which appears to show that a doctor of medicine is or may be guilty of unprofessional conduct or is or may be mentally or physically unable safely to engage in the practice of medicine. While this new provision is primarily designed to protect the public and the informant, establishing an effective disciplinary procedure, the new act does at the same time, grant Board authority to stipulate corrective measures in the interest of rehabilitation. — IT'S THE LAW.

Licensing

A regular license to practice medicine in the State of Arizona may be issued to a qualified doctor of medicine who is: a citizen of the United States, a graduate of a school of medicine approved by the Association of American Medical Colleges, certified as having completed a twelve-month approved hospital internship; certified and possesses a valid basic science certificate issued by the Arizona State Board of Examiners in the Basic Sciences or be exempt therefrom, of good moral and professional reputation, etc., and has satisfactorily passed the EXAMINATION. — IT'S THE LAW.

By RECIPROCITY, an applicant will be required to meet all of the foregoing requirements excepting passing the examination; may be subject to oral examination, must have a valid licence to practice medicine issued by examination **within fifteen years** next preceding his application by another state or territory of the United States, the District of Columbia or the National Board of Medical Examiners, must have not previously failed any written examination given in Arizona for a license to practice medicine, and for the three years next preceding his application, has been actively engaged in one or more of the following: (a) active practice of medicine; (b) approved residency training program; (c) post graduate training deemed by the Board equivalent to an approved residency training program. — IT'S THE LAW.

Graduates of foreign schools of medicine must meet all of the requirements of applicants by examination aforementioned, excepting that his foreign medical education shall be deemed by the Board equivalent to that approved by the Association of American Medical Colleges; that he received a standard certificate issued by the Educational Council for Foreign Medical Graduates; that he has completed a twenty-four month approved hospital internship training program in the United States, its territories or the District of Columbia; and has the working ability to read, write, speak, understand and be

understood in the English language. – IT'S THE LAW.

A temporary license to practice medicine may be issued, the applicant meeting all of the aforementioned requirements applicable, excepting certification in the Arizona basic sciences and passing the examination, but must possess a valid license to practice medicine issued by examination by another state or territory of the United States or the District of Columbia. They shall be granted by the Board when, in its discretion, it deems necessary to satisfy: (1) instances of local or national emergency; or (2) instances of lack of availability of adequate medical care in an Arizona community. The term: no longer than six months, renewable for no more than one additional term of six months. – IT'S THE LAW.

Fees

For a regular license by examination $50.00; by reciprocity $150.00; for temporary license $50.00 each; for a duplicate license $5.00; for endorsement of an Arizona license $10.00; for initial registration of a regular license $5.00; for annual registration required thereafter, resident licentiates $5.00 and non-resident licentiates $20.00; for annual registration for internship training $5.00 – residency training $10.00 – – IT'S THE LAW.

Meetings

The Board of Medical Examiners will meet regularly in its offices in Scottsdale, Suite 202, Safari Building, 4601 North Scottsdale Road, on the second Saturday of January, May and August. Examinations will be held at a time to be specified in the month preceding each of these regular meetings, i.e., April, July and December. – – IT'S THE LAW.

These are some of the important changes in the new law now in effect. For further details call the Board Offices in Scottsdale: 946-3420. The present Board of Medical Examiners are:

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Michael T. Long, M.D. Awarded Fellowship

Awarded a National Institute of Neurological Diseases and Blindness research training fellowship, Michael T. Long, M.D. has commenced duty with the Convulsive Disorder Unit of the Barrow Neurological Institute of St. Joseph's Hospital.

A graduate of Indiana University Medical School, Doctor Long served his internship at Marion County General Hospital, Indianapolis, and spent his residency in Neurology at Indiana University Medical Center.

Mrs. Michael Long, their two-year old son and four-year old daughter have accompanied Doctor Long to Phoenix for his fellowship term.

COLLEGE OF AMERICAN PATHOLOGISTS OFF TO SEE RUSSIAN LABORATORIES

Doctor Maurice Rosenthal of Phoenix, Arizona, is one of twenty-six members of the College of American Pathologists who have been invited to Moscow and Leningrad to meet with Russian pathologists to exchange professional ideas. The invitation was extended by the Soviet Ministry of Health; however, the members of the College taking the trip will each assume the cost of the journey and have agreed with their Soviet counterparts to limit the intensive discussions in the 10 days visit to a specialty-wide interchange. The physicians will make full-day visits to each of seven major research and teaching institutes in Moscow and Leningrad specializing in experimental physiology, tumor treatment, blood transfussions, body resuscitation and other subjects.



Dr. John R. Hayes (right) receives the Aesculapius Award from Dr. W. Albert Brewer, President of the Arizona Medical Association. THE ARIZONA REPUBLIC

PHYSICIAN WINS AWARD FOR EXHIBIT

A moving model showing how life-threatening fluid was drained from a child's heart, has won the Aesculapius Award for Dr. John R. Hayes, resident in pediatrics at Maricopa County General Hospital.

The model was exhibited by Dr. Hayes at the annual meeting of the Arizona Medical Association in Chandler last spring.

Entitled "Pericardial Centesis," the model was based on an actual case at county hospital.

The membranous sac enclosing the small patient's heart began to fill with fluid. Pressure of the fluid around the heart made it increasingly difficult for the heart to beat. It was in danger of stopping.

The model exhibited by Dr. Hayes which, incidentally, won out over competing exhibits from out-of-state medical centers, showed the ingenious arrangement of tubes devised by the county hospital pediatrics resident, which allowed drainage without interfering with the function of the heart.

The award is sponsored by Mead Johnson & Co., pharmaceutical manufacturers, Evansville, Indiana.

MEDICAL SCHOOL RECEIVES GRANT

The Smith Kline & French Foundation has contributed $43,000 to eight medical schools for use by newly appointed deans and department chairmen. The grants may be used for whatever new programs the appointees might wish to introduce. One of the recipients of a grant in the sum of $10,000 is the University of Arizona College of Medicine, Tucson, Merlin K. DuVal, Jr., M.D., Dean.

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5. If the physician questions the patient's eligibility for "service benefits," he may refer the patient to Blue Shield, thus placing the burden of proof of eligibility on the patient. Certifying his eligibility should be the Plan's function and not a burden on the physician's office.
6. Physicians should not be burdened with reporting other physicians' services, i.e., consultants, anesthesiologists, assistant surgeons, etc.
7. Physicians and their office personnel should not be burdened with constant referral to a manual for procedure codes and "listed" or "unlisted" illnesses. Coding should be a Plan function and any medical case should be reported merely with a full diagnosis and the services rendered.
8. The Blue Shield subscriber is entitled to be notified of any and all benefits claimed on his behalf by physicians and the amounts paid on his behalf to physicians. Any balance due the physician should also be clearly stated.

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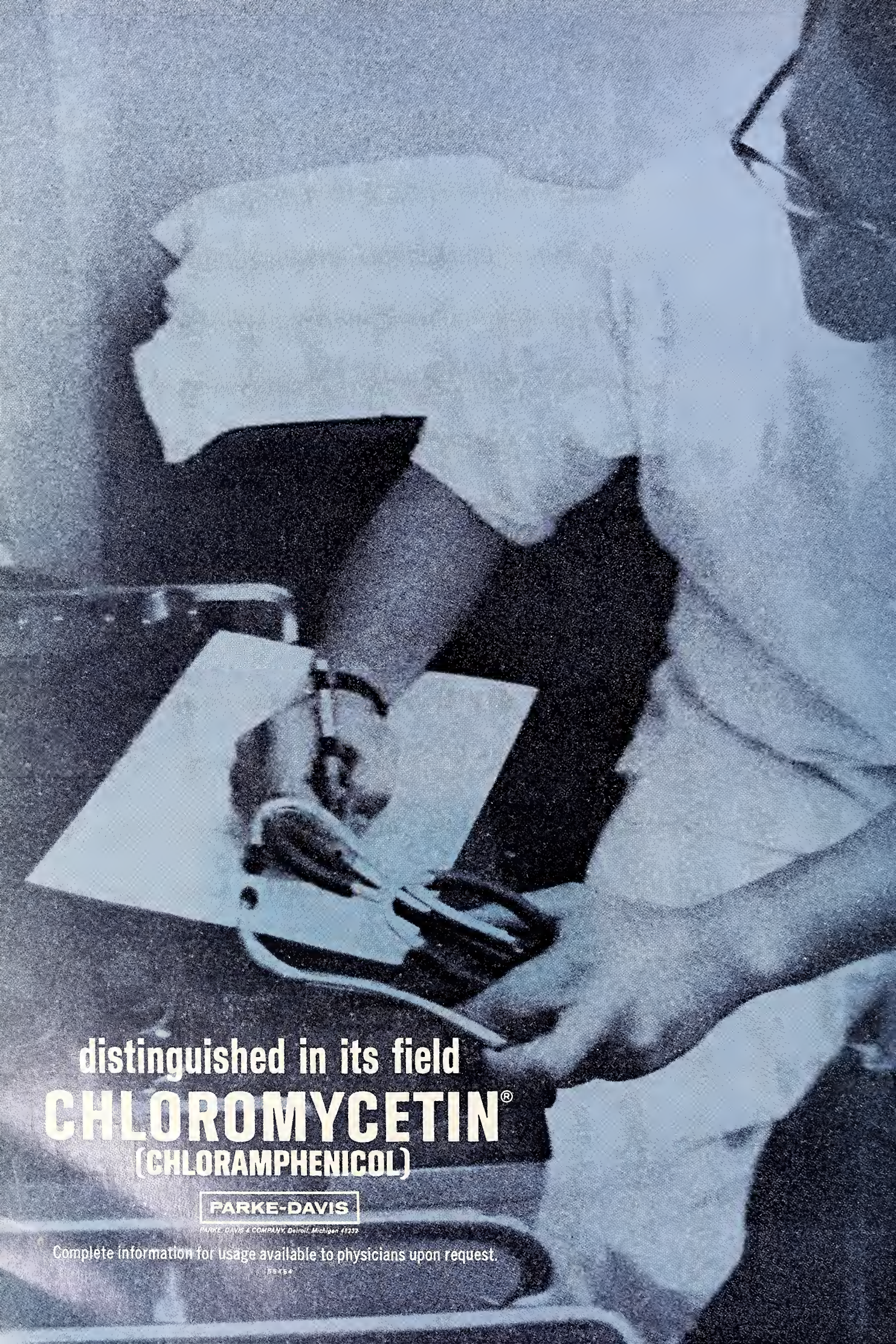
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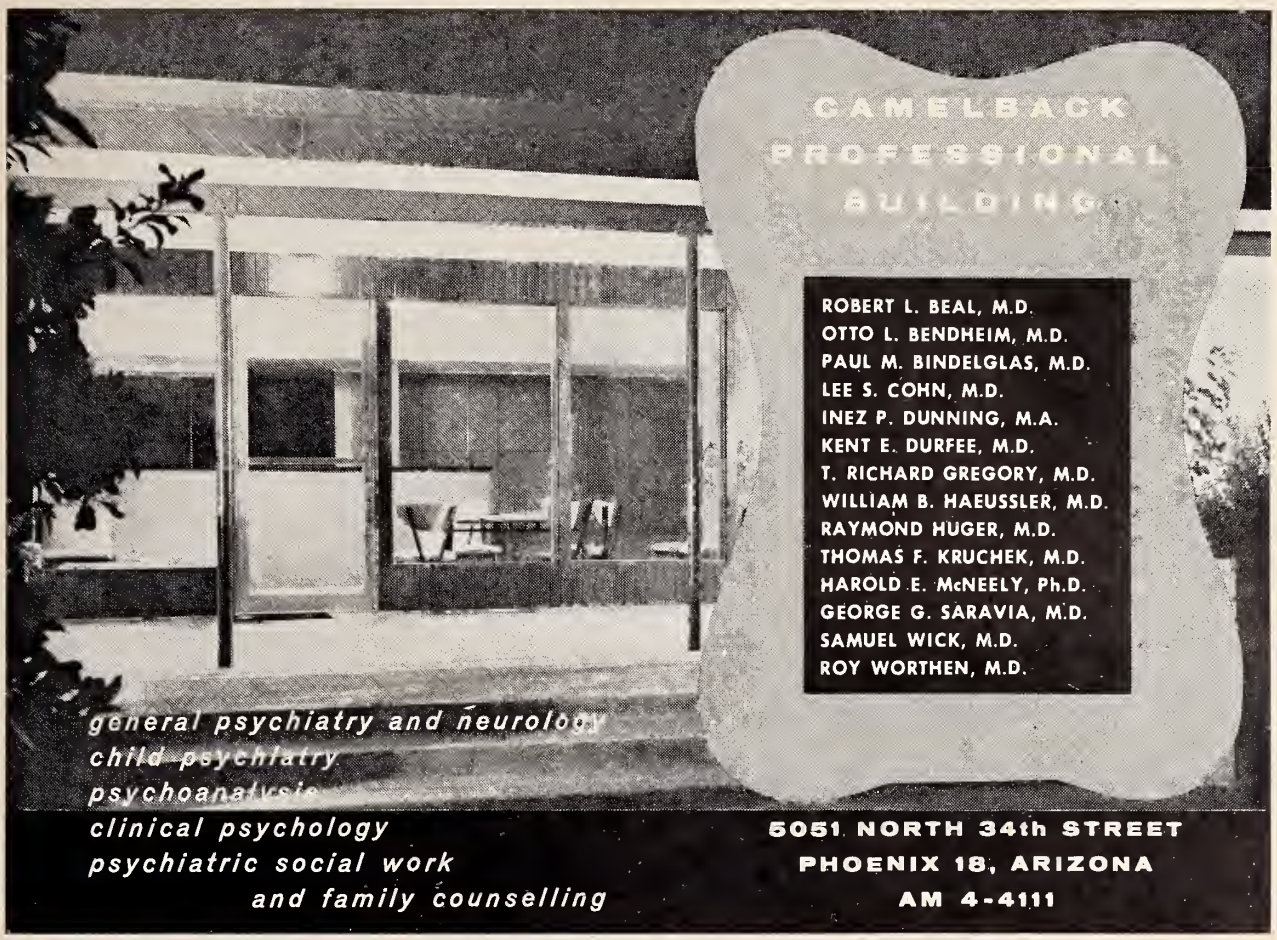
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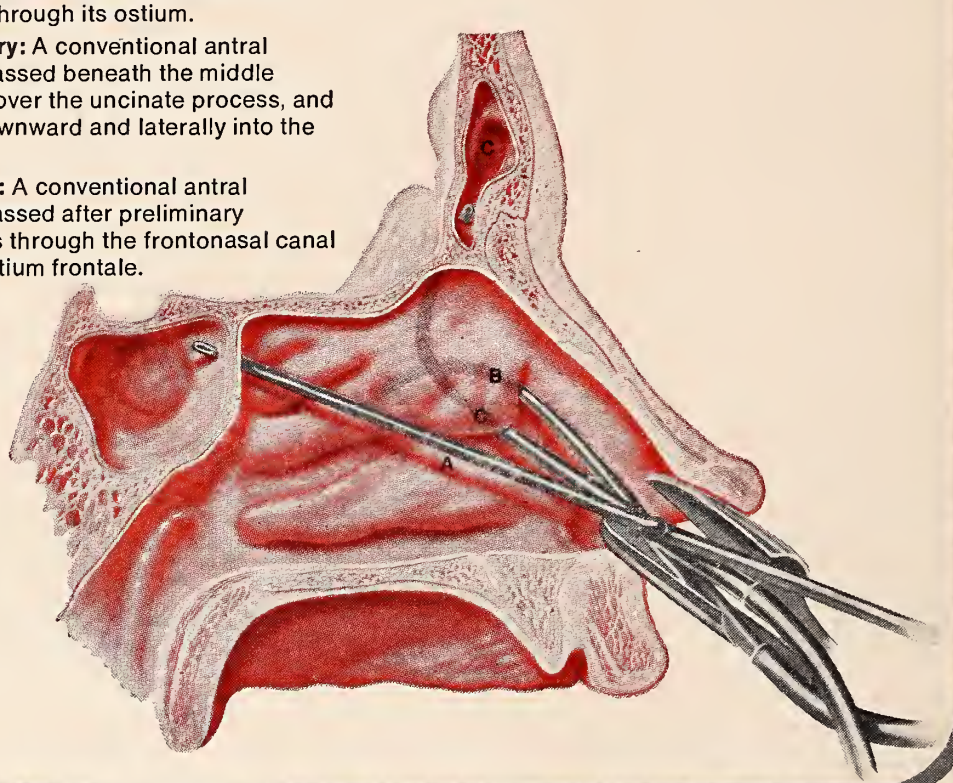
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*Reed, G. F.: Sinusitis, New England J. Med. 267:402, Aug. 23, 1962.

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1. Brown, G.W., Tuholski, J.M., Sauer, I.W., Minsk, L.D., and Rosenstern, L.: J. Pediat. *56*:391, 1960.

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Embarking on this joint venture with the Doctors Business Bureau, Inc. of Tucson, we will be able to give the physicians of Tucson improved service through our expanded and combined facilities.

Mr. Gary W. Wade who will handle our operation in Tucson at 505 North Alvernon has been serving the doctors in the Tucson area in the field of collections and professional business management for many years. Mr. Wade is President of the Doctors Business Bureau and having recently moved into an ultra modern building offers the finest bookkeeping and management service to the professions. Mr. Wade is currently President and on the Board of Trustees of the Medical-Dental-Hospital Bureaus of America, an association of professional service bureaus throughout the United States and Canada with headquarters in Chicago.

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Each 5 cc. (1 tsp.) contains:

Glyceryl guaiacolate	100 mg.

Alcohol 3.5 per cent

ROBITUSSIN® A-C (exempt narcotic)

Robitussin with antihistamine and codeine

Each 5 cc. (1 tsp.) contains:

Glyceryl guaiacolate	100 mg.
Pheniramine maleate	7.5 mg.
Codeine phosphate	10.0 mg.

(Warning: may be habit forming)

Alcohol 3.5 per cent

Robitussin is indicated in coughs associated with head and chest colds, bronchitis, laryngitis, tracheitis, pharyngitis, pertussis, "flu," "grippe," measles, chronic paranasal sinusitis, pulmonary tuberculosis, or smoking. Robitussin A-C is especially indicated for allergic, harsh or unresponsive coughs.

dosage: ADULTS—1 tsp. every 3 to 4 hours. CHILDREN—½ tsp. every 3 to 4 hours.

side effects: No serious side effects from glyceryl guaiacolate have ever been reported. Nausea, G-I upset, and drowsiness may be encountered rarely with Robitussin A-C.

precautions: There are no contraindications for Robitussin. Robitussin A-C is contraindicated in patients hypersensitive to antihistamines or codeine.

DIMETANE® EXPECTORANT

antihistaminic / antitussive

Each 5 cc. (1 tsp.) contains:

Dimetane® (brompheniramine maleate)	2 mg.
Phenylephrine hydrochloride	5 mg.
Phenylpropanolamine hydrochloride	5 mg.
Glyceryl guaiacolate	100 mg.

Alcohol 3.5 per cent in a palatable, aromatic base.

DIMETANE® EXPECTORANT-DC (exempt narcotic)

antihistaminic / antitussive / suppressant

Codeine phosphate	10 mg.

(Warning: may be habit forming)

Dimetane® (brompheniramine maleate)	2 mg.
Phenylephrine hydrochloride	5 mg.
Phenylpropanolamine hydrochloride	5 mg.
Glyceryl guaiacolate	100 mg.

Alcohol 3.5 per cent in a palatable, aromatic base.

Indicated for relief of cough and allergic states in which an expectorant action is useful. Dimetane Expectorant-DC is indicated when the cough suppressant action of codeine is desired.

dosage: ADULTS—1 to 2 tsp. q.i.d., as necessary. CHILDREN—½ to 1 tsp., t.i.d. or q.i.d.

side effects: Overdosage may result in mild drowsiness or excitement, but within the therapeutic range neither is likely.

Precautions: Administer with caution to patients with cardiac or peripheral vascular diseases and hypertension.

contraindications: Hypersensitivity to antihistamines or codeine. Not recommended for use during pregnancy.

references:* Boyd, E. M., and Ronan, A. K.: Am. J. Physiol., 135:383, 1942.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 P. O. Box 128
Scottsdale, Arizona

OFFICERS AND DIRECTORS
1964-65

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Howard W. Finke, M.D. Southwestern District
Magma Hospital, Superior, Arizona

DIRECTOR AT LARGE

William B. Steen, M.D. Past President
116 N. Tucson Blvd., Tucson, Arizona

COMMITTEES — 1964-65

NOTE: The President, President-elect and Secretary are ex-officio members of all committees unless otherwise specified.

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COCHISE: Harry C. Smith, M.D., President, 640 — 10th St., Douglas; Raymond Grossman, M.D., Secretary, 610 — 9th St., Douglas.

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GREENLEE: Hugh LaMaster, M.D., President, Box 1597, Clifton; Charles B. Daniell, M.D., Secretary, Morenci Hospital, Morenci.

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(Society Office — 2025 N. Central Avenue, Phoenix)

MOHAVE: Walter Brazie, M.D., President, Masonic Building, Kingman; John J. Standifer, M.D., Secretary, 412 E. Oak Street, Kingman.

NAVAJO: Theodore L. Lothman, M.D., President, Box 397, Holbrook; Claude H. Peterson, M.D., Secretary, 212-A Bruchman Bldg., Winslow.

PIMA: Hermann S. Rhu, M.D., President, Alvernon & Fifth St., Tucson, Elliott E. Stearns, Jr., M.D., Secretary, 2442 E. Elm St., Tucson.
(Society Office — 2555 East Adams Street, Tucson)

PINAL: Robert Z. Collings, Jr., M.D., President, Florence Blvd. & Center St., Casa Grande; George Boiko, M.D., Secretary, 703 N. Olive St., Casa Grande.

SANTA CRUZ: Karl L. Meyer, M.D., President, Stage Building, Nogales; Charles S. Smith, M.D., Secretary, Gebler Building, Nogales.

YAVAPAI: Clarence E. Yount, Jr., M.D., President, P. O. Box 1626, Prescott; William R. Shepard, M.D., Secretary, 506 Gurley St., Prescott.

YUMA: Ellis V. Browning, M.D., President, 407 N. 16th St., Yuma; James Volpe, Jr., M.D., Secretary, 1801 Sixth Ave., Yuma.

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508 W. Rose Lane, Phoenix, Arizona

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6911 Soyaluna Place, Tucson, Arizona

1st Vice President Mrs. Robert G. Delph (Grace)
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2nd Vice President Mrs. Robert L. Gullen (Beverly)
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Corresponding Secretary Mrs. Joe L. Bonnet (Lorri)
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Director (1 year) Mrs. Clare W. Johnson (MaryAnne)
318 West Lawrence Road, Phoenix 13, Arizona

Director (1 year) Mrs. William H. Lyle (Jill)
1400 - 16th Place, Yuma, Arizona

Director (2 years) Mrs. Juan Fonseca (Virginia)
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MEDICAL SOCIETY OF THE UNITED STATES & MEXICO

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Treasurer for the United States Dr. Lucy Vernetti
2021 N. Central Avenue, Phoenix, Arizona

Treasurer for Mexico Dr. Eduardo Gonzalez Murguia
Juarez 673, Guadalajara, Jal., Mexico

Executive Secretary for Mexico Mr. Alfredo Patron
Mazatlan, Sinaloa, Mexico

Complete officer and committee listings will appear in the December issue.

BOARD OF DIRECTORS

Meeting of the Board of Directors of The Arizona Medical Association, Inc., held Sunday, September 20, 1964, in the French Quarter of the Safari Hotel, Scottsdale, Arizona, convened at 10:10 A.M., Paul B. Jarrett, M.D., Vice President and Chairman, presiding.

ROLL CALL

PRESENT: Drs. Beaton, Lindsay E.; Brazie, Walter; Brewer, W. Albert, President; Cloud, Jr., Daniel T.; Derickson, Philip G.; Dexter, Richard L.; Dierker, Hugh E.; Dudley, Jr., Arthur V., Treasurer; Dysterheft, Arnold H.; Finke, Howard W.; Flynn, Richard O.; Henderson, Charles E., Secretary; Jarrett, Paul B., Vice President and Chairman; Lorenzen, Robert F.; McDaniel, W. Shaw; O'Hare, James E., President-elect; Price, Robert A.; Rhu, Jr., Hermann S.; Smith, Noel G.; Steen, William B., and Taylor, Ashton B.

COUNSEL: Mr. Jacobson, Edward.

STAFF: Carpenter, Robert, Executive Secretary; Robinson, Bruce E., Executive Assistant.

GUEST: Boykin, Paul R., Executive Secretary — Board of Medical Examiners, State of Arizona.

MINUTES

Minutes of the meeting of the Board of Directors held April 28, 1964 and May 1, 1964, approved.

EXECUTIVE COMMITTEE REPORT

The Secretary reported upon the business transacted by the Executive Committee in meeting held May 24, 1964, as follows:

Senatorial Appreciation

Honorable Harold C. Giss, Senator of the State of Arizona, expresses appreciation for rare opportunity and privilege extended him and his great pleasure in being a guest of the Association at dinner held in Chandler, Arizona, September 28, 1964. The President reported official presentation to the Senator of a plaque as directed by the Board.

Board of Medical Examiners

Nominations of this Board, presented to the Governor of the State of Arizona, the Honorable Paul J. Fannin, April 28, 1964, to fill two vacancies on the Board of Medical Examiners of the State of Arizona including Melvin W. Phillips, M.D., of Prescott; Harry T. Southworth, Jr., M.D., of Prescott; Howard W. Finke, M.D., of Superior and James T. O'Neil, M.D., of Casa Grande. The Governor appointed Dr. Phillips for the term expiring July 1, 1969 and Dr. Finke for the term expiring July 1, 1968.

House Resolution No. 24

House Resolution No. 24, adopted by the House of Delegates of this Association May 1, 1964 contingent upon legal review and determination as to whether or not such resolution might be in conflict with any laws of the State of Arizona, provided recommendation to the county societies that they include a voluntary non-tax-deductible contribution of not less than Twenty ($20.00) Dollars to AMPAC-ArMPAC in their county annual dues statement (for 1964 a supplementary bill to be sent to each member and continuing thereafter with the annual dues statement, provided any additional expenses incurred as a result of this action are assumed by the Arizona Medical Political Action Committee).

Counsel reports under date of June 1, 1964 that he has found nothing in the resolution or in the action contemplated thereunder which would violate any Arizona statutes with respect to political activities or otherwise or jeopardize the tax-exempt positions of the county societies or the Arizona Medical Association. In addition, the procedure to be followed will not affect the deductibility of the annual dues of the county societies by the individual members, it being understood, of course, that donations to ArMPAC are not deductible.

It was moved by Dr. Steen, seconded by Dr. McDaniel and carried (Dr. Rhu voting in the negative) that the voluntary billing by component county medical societies of a minimum Twenty ($20.00) Dollar contribution to AMPAC-ArMPAC, non-tax deductible, to be included with the annual dues billing, be approved and recommended and that each society be informed of the opinion of counsel in this regard.

House Resolution No. 28

House Resolution No. 28, on recommendation of the Reference Committee May 1, 1964, referred to the Professional Committee through the Board of Directors for its study and recommendations, provides that the Association go on record as being against the ownership by hospitals, or their affiliated holding companies, of professional office facilities for leasing or renting to medical doctors engaged in the active practice of medicine. Upon receipt of the report of the Professional Committee, the Board of Directors, shall take such action as it may deem advisable and necessary.

The Professional Committee, in meeting held August 23, 1964, resolved: (1) that it be the expressed feeling of this Professional Committee that the Resolution directed towards hospitals, introduced in the last State meeting, does not fall within the scope of this Professional Committee nor within the scope of the State Medical Association; and (2) that the question of renting space from a hospital or subsidiary, with any obligation or implied obligation of relationship between the lessor (the hospital), and the lessee (the practicing physician), be referred to the Board of Directors.

It was moved by Dr. McDaniel, seconded by Dr. Beaton and unanimously carried (in keeping with Resolution No. 28) that the Arizona Medical Association (House of Delegates) go on record as being against the ownership by hospitals or their affiliated holding companies, of professional office facilities for lease or renting to medical doctors engaged in the active practice of medicine, EXCEPT IN THOSE CASES WHERE SUCH RELATIONSHIP OR ARRANGEMENT IS NECESSARY FOR THE PROPER PRACTICE OF MEDICINE IN THAT COMMUNITY.

Grand Canyon Hospital

While this matter was not on the agenda, nor considered by the Executive Committee, Dr. Dierker discussed the question of ethical concept of the percentage arrangement relating to a provision in the prospectus for medical services at the Grand Canyon Village area (Hospital), Grand Canyon National Park, Arizona, placing non-professional people in a participating partnership with the profession. The section within the contract dealing with "Payment by Doctor for Privileges Granted" provides:

"Under the present policy of the National Park Service, the franchise fee to be paid by concessioners consist of a flat fee, in lieu of ground rent, which includes a fair return for the Government improvements assigned and any facilities or services furnished by the Government for which no separate charge is made, **plus a percentage of gross receipts for the privilege of doing business.** In this case the flat fee will be $500 per annum. Each applicant should include in his offer the percentage of gross receipts he is willing to pay for the privileges to be granted." (Underscoring supplied).

Following up this provision, the "Offer," to be submitted by the qualified physician-surgeon to operate the Grand Canyon Hospital and associated general medical practice at Grand Canyon Village on the south rim of Grand Canyon National Park, provides in part as follows:

". . . and to pay annually to the United States for the concession granted the sum of $500 plus an amount equal to per cent of the gross receipts."

It was moved by Dr. O'Hare, seconded by Dr. Dierker and unanimously carried that this Association notify the National Park Service, Department of the Interior of the United States that the form of contract being offered is contrary to medical ethics, urging its change.

It was moved by Dr. Brewer, seconded by Dr. Dudley and unanimously carried that the expressed position of this Association as regards the prospectus of medical services in connection with the operation of the Grand Canyon Hospital and associated general medical practice at Grand Canyon Village on the south rim of the Grand Canyon National Park, especially as pertains to the section dealing with "Payment By Doctor for Privileges Granted," including a percentage of gross receipts the eligible physician-surgeon is willing to pay for privileges granted, be forwarded to the American Medical Association for its information.

House Resolution No. 29

House Resolution No. 29 provided that methods be explored by the Board of of Directors to provide a change in the requirements for active membership so that Associate members may become Active members and that a resolution effecting this change be prepared for vote at the 1965 meeting of this Association.

The Reference Committee on Resolutions recommended that this be referred, through the Board of Directors, to the Constitution and By-Laws Committee of this Association for its study and recommendation which was adopted May 1, 1964.

Chapter II, Membership, Section 3. Classes of Membership: (A) Active Members (of the By-Laws of this Association) provides, among other things, that said active members . . ." (4) be in active private practice in Arizona . . . An active member shall have all the rights and privileges of the Association as (herein) provided." "(C) Associate Members may be elected by the Board, upon recommendation of the society of the county in which such members reside, from those doctors of medicine who are licensed to practice medicine and surgery in Arizona, but are (1) disabled and unable to practice, (2) retired from active practice and not eligible for Fifty-Year Club membership, or (3) active members who leave active practice to undergo a further training period lasting six months or more, or for military service. Associate members shall have all the rights and privileges of active members except the right to serve as a Delegate or to hold elective office. They shall not be required to pay Association dues. They shall not retain this classification upon resumption of active practice, but shall revert to active membership status." "(D) Service Members . . . the Board may elect as service members doctors of medicine who are full-time medical employees of the United States, of Arizona, or of any county or municipal government in Arizona. They must be resident in the State of Arizona. Service members shall have all the rights and privileges of active members except the right to serve as Delegates, or to hold elective office. They shall pay one-quarter the dues of active members."

Dr. Dierker, who is presently serving as full-time Director of the Coconino County Health Department, contends that he and others in similar capacities are in "active practice" in the field of public health. He prefers to have active membership status. Dr. Dierker, prior to assuming his current affiliation, was in active medical practice in Flagstaff. He was elected to the Board of Directors as a Northwestern District Director during the Annual Meeting of the Association, May 1, 1964.

It was directed that information be gathered as to the general trend throughout the country regarding membership classifications especially concerning those engaged in public health service, determining whether or not such practice is considered the active practice of medicine and therefore classified active members.

It was moved by Dr. Beaton, seconded by Dr. Rhu and unanimously carried that action in this regard be deferred until we have more information as to action of other societies (in this regard) and that the matter be then referred to the Articles of Incorporation and By-Laws Committee for review and recommendation.

Congressional Appreciation

Honorable John J. Rhodes, Congressman of the United States, expresses appreciation of the thoughtful expression of approval of his work in Congress, especially in the interest of medicine, forwarded as an expression of view of this Association in telegram released May 1, 1964. Received.

House Resolution No. 14

House Resolution No. 14, adopted by the House of Delegates of this Association May 1, 1964, providing that the interest earned on savings accounts be credited to the Benevolent and Loan Fund Committee for the institution of scholarships and directing that Committee to draw up rules and regulations for awards of scholarships. Fund transfer approved.

Application for scholarship received from Miss Barbara Ruth Reed, referred to Benevolent and Loan Fund Committee for attention.

Membership Classification Change

Murlin Nester, M.D. (Pima), classification change from Active to Associate, dues exempt, account disability — illness — effective January 1, 1964, recommended. Approved.

Industrial Commission

Industrial Commission of Arizona reports change in effective date of its revised Relative Value Medical and Surgical Fee Schedule from May 1, 1964 to June 1, 1964.

Cardiovascular Advisory Board to the Industrial Commission of Arizona established appointing Samuel J. Grauman, M.D. (Tucson) as Chairman, in addition to Monroe H. Green, M.D. (Phoenix) and Robert E. Nenad, M.D. (Phoenix), confirmed at its meeting May 15, 1964.

Case of Elsie M. White (AU 28060) vs. J. Earle Estes, M.D. (Phoenix), in the matter of alleged interference by the Industrial Commission of the private doctor-patient relationship, reviewed. Dr. Brewer reported that he had requested the Industrial Relations Committee of this Association to report as to the facts and its opinion relative thereto. This report has not been received to date.

It was regularly moved and unanimously carried that this matter be tabled.

Nursing

Referred to the Professional Committee for review and comment, matters dealing with nursing presented by Dermont W. Melick, M.D., member of this Board and Delegate to AMA.

Medicare Contract No. DA-05-114-MD-12

Reported execution of agreement renewing Medicare Contract No. DA-05-114-MD-12 for the term September 1, 1964 to August 31, 1965. This Board previously authorized such execution providing the contract adheres to that then currently in effect (No. DA-49-192-MD-116) without renegotiation of the fee schedule. Received.

Speech Training Service

Referred to the Public Relations Committee the proposed Speech Training Service offered by Smith Kline and French Laboratories to improve public speaking and public relations programs. Received.

BOARD OF DIRECTORS

Southeastern District Director

Thomas W. Jensen, M.D., of Safford, Southeastern District Director, elected for the term 1962-65, submits his resignation by letter dated September 5, 1964. Accepted with regret.

Deward G. Moody, M.D., of Nogales, was duly nominated and unanimously elected to the office of Southeastern District Director, filling the vacancy created by the resignation of Dr. Jensen, to serve until the next election.

As an alternate in the event Dr. Moody should decline acceptance of the office, Charles W. McMoran, M.D., of Sierra Vista, was duly nominated and unanimously elected to the office of Southeastern District Director to serve until the next election.

Benevolent and Loan Fund Committee

Andre J. Bruwer, M.D. (Tucson), declined appointment; Darwin W. Neubauer, M.D. (Tucson), accepts interim appointment by the President. Confirmed for the term 1964-67.

Industrial Relations Committee

Richard E. H. Duisberg, M.D. (Phoenix), declined; Derald G. May, M.D. (Phoenix), accepts interim appointment by the President. Confirmed for the term 1964-67.

Standing — Special Committees

It is reported that all appointees to the following committees, appointed by the Board of Directors May 1, 1964, have accepted the assignment.

Standing (1964-67): Benevolent and Loan Fund Committee; Grievance Committee; History and Obituaries Committee; Industrial Relations Committee; Legislative Committee; Medical Economics Committee; Publishing Committee and Scientific Assembly Committee.

Special 1964-65): Articles of Incorporation and By-Laws Committee; Central Office Advisory Committee; Executive Committee; Procurement and Assignment Committee.

Professional Committee

Doctors Earl J. Baker (Phoenix) 1964-67; Jack E. Brooks, Chairman (Phoenix) 1964-67; Orin J. Farness (Tucson) 1964-65; Ray Fife (Phoenix) 1964-65; Ben P. Frissell (Phoenix) 1964-67; T. Richard Gregory (Phoenix) 1964-66; Jesse D. Hamer (Phoenix) 1964-66; Harold W. Kohl, Jr. (Tucson) 1964-65; Dermont W. Melick (Phoenix) 1964-66; William G. Payne (Tempe) 1964-67; and Delbert L. Secrist (Tucson) 1964-67 have accepted appointment and were confirmed for the terms indicated.

Public Relations Committee

Laurence M. Linkner, M.D. (Phoenix); William W. McKinley, Jr., M.D. (Bisbee); Arthur V. Dudley, Jr., M.D. (Tucson) and J. Edwin Keppel, M.D. (Mesa) appointed and/or reappointed, each for the term 1964-67. C. Herbert Fredell, M.D. (Flagstaff) 1963-66; Robert V. Horan, M.D. (Globe) 1963-66; Howard W. Finke, M.D. (Superior) 1962-65; and William H. Lyle, M.D. (Yuma) 1963-66, remaining Area Campaign Chairmen of Operation Hometown, previously appointed are currently serving as members of this Committee for the term indicated in each instance. Confirmed.

Territorial Medicine Publication, Ad Hoc Committee for Arizona

W. Albert Brewer, M.D. (Phoenix), Chairman, has appointed or reappointed the following membership to serve: Nelson C. Bledsoe, M.D. (Tucson); Roland F. Schoen, M.D. (Casa Grande); William B. Steen, M.D. (Tucson); and Clarence E. Yount, Jr., M.D. (Prescott) and Mrs. Dorothy McNamee (Tucson) as an advisory member. Confirmed.

Blue Shield, Ad Hoc Committee to Study the Orderly Alignment of

The President appointed or reappointed the following membership to serve: George Scharf, M.D. (Phoenix) Chairman; Richard S. Armstrong, M.D. (Tucson); R. Lee Foster, M.D. (Phoenix); Walter T. Hileman, M.D. (Tucson); Paul B. Jarrett, M.D. (Phoenix); Charles R. McReynolds, M.D. (Yuma). Confirmed.

Ad Hoc Committees

It was determined the appointees to the ad hoc committees (1) the Study of ArMA Committee Structure; (2) for Appraisal of Arizona Blue Shield and (3) for the Study of Membership of the Board of Directors,

having completed their respective assignments, are to be considered automatically dismissed.

Rehabilitation Center of the University of Arizona, Ad Hoc Committee to Study the Medical Role Relating to the

On recommendation of the Professional Committee, the appointees to the Ad Hoc Committee to Study the Medical Role Relating to the Rehabilitation Center of the University of Arizona, having yet to function, were dismissed, close liaison having been developed between the Center and the Pima County Medical Society.

ArMPAC Board of Directors

William B. Steen, M.D. (Tucson), Chairman; Walter D. Anderson, M.D. (Yuma); Walter Brazie, M.D. (Kingman); John F. Kahle, M.D. (Flagstaff); William G. Payne, M.D. (Tempe); John R. Schwartzmann, M.D. (Tucson); John F. Westfall, M.D. (Phoenix); Henry G. Williams, M.D. (Phoenix); Mrs. Lavern D. Sprague (Tucson); and Mrs. Richard P. Timmons, Scottsdale), appointed and acepted for the term expiring February 1, 1965. Confirmed.

Jesse D. Hamer, M.D.

Jesse D. Hamer, M.D., Past Delegate to the AMA, by letter dated September 15, 1964, expressed his grateful appreciation and best wishes to the Board of Directors for the beautiful plaque awarded to him at the President's Dinner-Dance held May 1, 1964, in recognition of his thirty years of service to this Association.

It was regularly moved and unanimously carried that this letter of appreciation presented by Dr. Hamer be received and that it be published in ARIZONA MEDICINE, including a photograph of Dr. Hamer and the plaque.

Advisory Survey and Construction Council

The term of William B. Steen, M.D. (Tucson), serving as a member of the Advisory Survey and Construction Council, representing this Association, expires January 1, 1965. Chapter 10, Hospital Survey, Construction and Districts, Article 1, Survey and Construction, Section 36-1203 provides that the Advisory Survey and Construction Council advise and consult with the State Department of Health in carrying out the provisions of this Article. Membership shall consist of the Commissioner of Public Health as ex-officio chairman and, among others, one member chosen from a panel of four to be submitted by the Arizona Medical Association from which panel the Governor will appoint a member for a term of four years on January 1 of the year of expiration of the preceding member's term. Dr. Steen stated that he will have completed two consecutive terms come January first of the new year and it is his feeling that a member cannot serve more than two terms.

It was regularly moved and unanimously carried that this matter be tabled (to be considered by the Board of Directors at its next meeting, possibly in December).

AMA HOUSE OF DELEGATES

Resolution No. 20

Adopted May 1, 1964, it is resolved that the Board of Directors be instructed to utilize all facilities at its hand to implement the intent of Resolution No. 68 passed by the AMA House of Delegates recognizing the importance of the general practitioner as an essential component of American medicine; further that the Board report back to the 1965 House of Delegates what actions have been taken in the State of Arizona and what progress has been made in the solution of this serious problem facing the American public, namely the impending critical shortage of general practitioners to serve the public. Received.

Resolution No. 25

Adopted May 1, 1964, it is resolved that the Board of Directors be directed to expend every effort to have this inequity corrected (discrimination against doctors of medicine entering the practice of medicine immediately following an internship either served within or without the State of Arizona), working in conjunction with the State Board of Medical Examiners in an attempt to resolve this problem under the provisions of the new Medical Practice Act. Received, matter resolved.

Resolution No. 16

Adopted May 1, 1964 opposing proposed changes in the Internal Revenue Code, urging the officers and Board of Trustees of the American Medical Association to continue their vigorous actions in this matter stating the position of AMA in opposition to these proposed changes in the IRC. This resolution was introduced in the House of Delegates of AMA at its Annual Meeting, June 22, 1964. Two similar resolutions were introduced by the Delegates from Florida and Georgia. The Reference Committee recommended the following substitute resolution which was adopted by the AMA House, June 24, 1964:

"WHEREAS, The American Medical Association has on numerous occasions supported the principle of tax equality for all Americans; and

Whereas, Employees of corporations may receive certain tax benefits withheld from the self-employed; and

Whereas, The federal courts have held in the Kintner and Galt cases that 'professional associations' are to be treated for tax purposes as corporations; and

Whereas, The Internal Revenue Service issued regulations dealing with the subject of professional associations; and

Whereas, The Internal Revenue Service has since proposed amendments to these regulations which discriminate against professional associations and professional corporations and are without authority of law; and

Whereas, Legislation has been introduced to provide tax equility with business corporations for 'professional associations' and 'professional corporations'; therefore be it

Resolved, That the American Medical Association continue its vigorous opposition to tax regulations that discriminate against 'professional associations' and 'professional corporations'; and be it further

Resolved, That the American Medical Association continue its support of legislation which seeks to provide tax equality with business corporations for 'professional associations' and 'professional corporations'."

It was regularly moved and unanimously carried that the substitute resolution adopted by the AMA House of Delegates, June 24, 1964, be published in full in Arizona Medicine in a section other than that devoted to ArMA reports of Board and Committee actions.

Resolution No. 18

Adopted May 1, 1964, provides that the previous issuance of charters to the fourteen (14) component county medical societies is acknowledged and the Constitutions and By-Laws be, and they are hereby, ratified, approved and confirmed as legal, valid and subsisting constitutions and by-laws. Counsel, by letter dated September 11, 1964, reported the results of review of constitutions (or articles of incorporation) and by-laws submitted by the component county medical societies with the exception of Graham County which advises that it has no constitution and by-laws and the Santa Cruz County Medical Society which advises that it operates under the Articles of Incorporation and By-Laws of the Arizona Medical Association.

The following Resolution is proposed for introduction in the House of Delegates of ArMA at its next Annual Meeting:

"WHEREAS, Section 6, Capter III of the By-Laws of The Arizona Medical Association, Inc. provides in part that:

"Charters shall be provided and issued to county societies only on approval of the Board, and shall be signed by the President and Secretary of the Assotion . . .", and

Whereas, many original charters once issued to variout county societies have been mislaid or lost, and

Whereas, it is the desire of The Arizona Medical Association, Inc. to remove any doubt which may exist with respect to the legal existence of any component county society, which may arise as the result of its charter having been mislaid or lost,

Therefore be it and it is hereby resolved, that the previous issuance of charters to the following named County Medical Societies is acknowledged:

Apache County Medical Society
Cochise County Medical Society
Coconino County Medical Society
Gila County Medical Society
Graham County Medical Society
Greenlee County Medical Society
Maricopa County Medical Society
Mohave County Medical Society
Navajo County Medical Society
Pima County Medical Society
Pinal County Medical Society
Santa Cruz County Medical Society
Yavapai County Medical Society
Yuma County Medical Society

Be it further resolved, that the President and Secretary be, and they are hereby instructed for and on behalf of The Arizona Medical Association, Inc. to send a certified copy of this Resolution to the Secretary of each county society named above, which certified copy shall constitute evidence of the previous issuance of charters to the above named county medical societies."

It was regularly moved and unanimously carried that this Resolution be introduced in the House of Delegates at its next Annual Meeting.

The Board later reconsidered this action and by motion made by Dr. Dudley, seconded by Dr. Beaton and unanimously carried, rescinded the aforementioned action.

The second proposed Resolution is as follows:

"WHEREAS, Section 6, Chapter III of the By-Laws of The Arizona Medical Association, Inc. provides in part that:

". . . The Articles of Incorporation and By-Laws of the Association shall be binding upon every county society and every member of every such society, anything in the constitution and by-laws of any such society to the contrary notwithstanding," and

Whereas, the articles (or where not incorporated, the constitutions) and by-laws of many of the county societies either partially conflict with the Articles and By-Laws of The Arizona Medical Association, Inc. or fail to make clear the principle of superiority quoted above, or both, and thus might be misleading, and

Whereas, certain of the county societies have no written rules (in the form of articles of incorporation, constitution, by-laws or otherwise) by which to govern themselves, and others, while having written rules, are not incorporated.

Therefore be it, and it is hereby resolved:

1. That any county society operating without a set of written rules for its own government, be encouraged to formulate and adopt the same as soon as reasonably possible, and

2. That any county society not now incorporated be encouraged to consult its own local attorney with respect to the possible advantages of incorporation, and

3. That each county society which has written rules be encouraged to cause the same to be reviewed and compared with the Articles of Incorporation and By-Laws of The Arizona Medical Association, Inc. in order that any inconsistencies or contradictions be eliminated, and

4. That each county society be encouraged to reprint the full text of Section 6, Chapter III of the By-Laws of The Arizona Medical Association, Inc. under an appropriate caption in a conspicuous place in their articles of incorporation, constitution and by-laws as soon as reasonably possible, in order that no reader of any such county documents will be uninformed of the content and effect thereof, and

Further resolved, that the President and the Secretary of The Arizona Medical Association, Inc., be, and they are hereby instructed for and on behalf of The Arizona Medical Association, Inc. to send a certified copy of this Resolution to the Secretary of each county society directing the Secretary thereof to circulate a copy of this Resolution amongst all of the members of his county society."

It was regularly moved and unanimously carried that this Resolution be adopted in behalf of the Board of Directors and that a copy thereof be forwarded to each component county medical society.

CENTRAL OFFICE ADVISORY COMMITTEE

Activity Separation — Office Relocation

The separation of the joint activities of the Central Offices of the Association and those of the Board of Medical Examiners of the State of Arizona was effected July 1, 1964. Robert Carpenter is to continue as Executive Secretary of the Association and Paul R. Boykin

has been appointed Executive Secretary of the Board of Medical Examiners.

Effective August 1, 1964 the relocation of the joint offices from the U-R Building to the Safari Building, 4601 North Scottsdale Road, Scottsdale, Arizona, was achieved, the Association occupying Suite No. 201, the Board of Medical Examiners, Suite No. 202.

These subjects were presented to the members of this Board of Directors, contained in letter dated June 30, 1964 and, by mail vote solicited of the twenty-three (23) members comprising this Board, twenty-one (21) voted approving these changes (cancellation of the old and execution of the new lease) and two (2) did not vote.

It was regularly moved and unanimously carried that this mail vote be recorded, reaffirmed and actions approved.

The working arrangements with the executive staff are to be considered annually by the Central Office Advisory Committee, directly concerned, any recommendations to be forwarded to the Board of Directors for its approval.

Membership Classification Changes

Maricopa: Mark H. Wall, M.D., requests partial refund of his 1964 State and/or National dues because of his departure from this State to practice in Los Angeles.

It was regularly moved and unanimously carried that this request be denied inasmuch as the By-Laws of the Association do not provide for such refund under the circumstances presented.

Pima: Murlin Nester, M.D., Active to Associate — Dues Exempt account disability — Illness — Effective January 1, 1964 — granted.

Yuma: Herbert C. Kling, M.D., Active to Associate — Dues Exempt acount retirement — Effective January 1, 1964 — granted.

INDUSTRIAL RELATIONS COMMITTEE

Psychiatric Advisory Board

William B. McGrath, M.D. (Phoenix), term 1963-65; Boris Zemsky, M.D. (Tucson), term 1963-66, continue as members of the Psychiatric Advisory Board to the Industrial Commission of Arizona. The terms of Charles P. Neumann, M.D. (Tucson) and Richard E. H. Duisberg, M.D. (Phoenix), expired July 1, 1964. Derald G. May, M.D. (Phoenix), a member of the Industrial Relations Committee of this Association, was given an interim appointment by the President to fill one of the two vacancies for the term July 1, 1964 to July 1, 1967. Charles P. Neumann, M.D. (Tucson), recommended reappointed for a term July 1, 1964 to July 1, 1968. As to term, this will effect staggering of the terms of each of the four members providing for one vacancy each year. Interim appointment of Dr. May and recommended appointment of Dr. Neumann approved.

PROFESSIONAL. COMMITTEE

Nursing Homes

Revision of rules and regulations promulgated by the Arizona State Department of Health relating to licensing of hospitals, especially as pertains to convalescent and nursing homes, in connection with minimum standards to enable insurance companies to make vendor payments. Considerable favor was expressed in the matter of "private" nursing homes as opposed to "federal" FHA sponsored ones, promoters of the latter group having no direct interest in operation of the facility upon completion. Suggested that possibly the Legislative Committee and/or the Medical Economics Committee might look into this matter and submit recommendations to the Board. FHA financing of nursing homes by promoters, referred to Board for discussion and any further action indicated. Received.

Rheumatic Fever

Rheumatic Fever Prophylaxix program, to be undertaken statewide, with the endorsement of the State Health Department, the Arizona Heart Association, the Arizona Pharmaceutical Association in addition to the hoped for approval of this Association, presented for discussion. It provides for low-cost penicillin to rheumatic fever patients unable to afford the medication, on proper application and clearance by physicians who want it for children who have had rheumatic fever or who are subject to recurrence of strep infections.

It was regularly moved and unanimously carried that this Association lend its endorsement and give full approval to the Statewide Rheumatic Fever Prophylaxix Program.

Immunization and Health Record

Approved the Immunization and Health Record reporting card designed by the Arizona State Department of Health and approved by the American Academy of Pediatrics.

Perinatal Mortality

Referred to the Legislative Committee for study and recommendation is the subject of "perinatal mortality" and possible need for legislation to protect those involved in providing confidential information for medical study for the purpose of reducing morbidity or mortality in the development of statistical data, to include representatives of this Association, the Arizona State Department of Health, allied medical societies, in-hospital staff committees, etc. Copy of the Nebraska Legislative Bill No. 326 is offered for reference. The information and material to be furnished is to be used only for the purpose of advancing medical research and medical education and provides for general publication of a summary of such studies providing exemption from legal liability for those furnishing such information and for those studying and publishing the results thereof; further, providing that such material and information and any findings or conclusions of such authorized groups shall be privileged communications which may not be used or offered or received in evidence in any legal proceeding. It is suggested that possibly the Legislative Committee will wish to seek legal advice in this regard.

School Nurses' Standing Orders

Recommended approval of School Nurses' Standing Orders promulgated by the Arizona State Department of Health as suggestions for nurses engaged in school health programs in the Arizona Public Schools, providing certain amendments are effected including: (a) under Article I, responsibilities of the schools dealing with "convulsions" that "when patient feels able, send home" rather than "return to class"; (b) under Article III, Immunization Programs, suggesting that

immunizations should be done in physicians' offices; and (c) under "Special Reminders" involving pregnancy exclusions, the parents involved should be referred to their private physician in preference to discussion with the nurse or the dean of girls, which were agreed upon. It is desirable that these Standing Orders be approved by the Arizona State Department of Health, the Arizona State Department of Public Instruction, the Arizona School Health Advisory Committee, the School Nursing Section of the Arizona State Nurses' Association and this Association.

It was regularly moved by Dr. McDaniel, seconded by Dr. Beaton and unanimously carried that the Standing Orders for School Nurses be approved subject to the suggested amendments agreed upon being effected.

Veneral Diseases Program

The Arizona State Department of Health reported matters relating to venereal diseases are now being handled on the local level. In Maricopa last year the subject was handled in the schools. Venereal diseases spot announcements are available for television and radio presentation through the State Health Department; also moving pictures, the latter also being obtainable through the health departments of Cochise, Coconino, Pima and Maricopa. It is recommended that the venereal diseases program of the Arizona State Deparmtent of Health be endorsed and that physicians throughout the State be made aware, through their respective component societies, that spot announcements and moving pictures are available for local use.

It was regularly moved and unanimously carried that the component county medical societies be informed of the venereal diseases program of the Arizona State Department of Health and the availability of spot announcements and moving pictures on application through that Department.

House Resolution No. 28

Control and private ownership of professional buildings and hospitals was previously discussed and reported upon.

PUBLIC RELATIONS COMMITTEE

H – O – P – E

The AMA sponsored National Education Program on Health Care for the Aged, H-O-P-E, (Health Opportunity Program for the Elderly) was reviewed and discussed in detail. Educational ads in weekly newspapers are to run the week of October 11th. Ads in dailies are to run the weeks of October 11th and 18th. Submitted is a listing of daily and weekly publications in Arizona recommended to be utilized in this campaign. The estimated total cost is $4,672.14; the maximum AMA budget to be allocated to Arizona is $3,772.02.

It was moved by Dr. O'Hare, seconded by Dr. Beaton and unanimously carried that the AMA Program HOPE, as outlined, be approved by this Association.

It was moved by Dr. O'Hare, seconded by Dr. Beaton and unanimously carried that the details and placing of the ads be handled through the Central Office staff on direction and approval of Dr. Jarrett as Chairman of the Public Relations Committee.

President's Business Committee

Presented for discussion was the organization and membership composite of the National Independent Committee for President Johnson and Senator Humphrey. Co-Chairmen of this organization includes Mr. John T. Connor, President of Merck and Co., Inc. of Rahway, New Jersey.

It was regularly moved by Dr. Lorenzen, seconded by Dr. Dudley and unanimously carried that the Chairman of this Board of Directors forward an appropriate letter to the Chairman of the Board of Merck and Co., Inc. expressing the surprise, concern and confusion of the role of Merck and Company's President, Mr. John T. Connors, associate with the National Independent Committee for President Johnson and Senator Humphrey and that a copy of the letter be forwarded to the component county medical societies for their information.

Speech Training Service

STS (Speech Training Service) is a new program offered by Smith Kline & French Laboratories designed to help organizations in the health field to form effective public speaking and public relations programs. It is available to all interested state, county and major metropolitan medical societies, pharmaceutical associations and mental health departments. SKF provides a training team for instruction seminars including a qualified professional speech instructor to demonstrate "physical expressiveness." Dr. Brewer reviewed this program in detail.

It was regularly moved and unanimously carried that the SKF Speech Training Service Program be accepted, the details and implementation thereof authorized developed through the Public Relations Committee.

Community Health Week

"Community Health Week" will be observed October 18-24, 1964. Its theme will be "Teaming Up for Better Health." The objective is to evoke an awareness and appreciation among the public of its community health facilities and health services, particularly those developed over the years through cooperative civic and professional action. Implementation of the program through the component county medical societies is recommended. Because of the pressing time element, details and work kits provided by AMA have been supplied the component medical societies. It is suggested that possibly the Governor and/or Mayors of the local communities be requested to declare "Community Health Week."

It was regularly moved and unanimously carried that the Board of Directors approve "Community Health Week" and its program arrangements to be carried out through the component county medical societies.

MEETING ADJOURNED FOR LUNCHEON AT 1:05 P.M.

* * *

MEETING RECONVENED AT 2:20 P.M., ALL MEMBERS PRESENT DURING THE MORNING SESSION WITH THE EXCEPTION OF DOCTORS CLOUD AND SMITH, HAVING BEEN EXCUSED, RESPONDING "AYE" TO THE ROLL CALL.

SCIENTIFIC ASSEMBLY COMMITTEE

Proposal of dividing the annual meeting into two separate meetings, one business, the other scientific, tabled.

COMMUNICATIONS

Auto Safety Award

Automotive Crash Injury Research (Cornell Aeronautical Laboratory — Cornell University) awarded third annual Medical Tribune Auto Safety Award for "life-saving achievement in the service of health." In acceptance of this coveted award, ACIR recognizes merit due physicians, among others, whose voluntary efforts helped produce reliable factual accident-injury data as a contribution to progress in the development of improved automotive passenger protection. Referred to ARIZONA MEDICINE.

AMA House Actions

AMA reports actions of its House of Delegates, June 24, 1964, including: (a) unalterable opposition to the denial of membership, privileges and responsibilities in county medical societies and state medical associations to any duly licensed physician because of race, color, religion, ethnic affiliation, or national origin; (b) that the AMA should, through its constituent and component societies, encourage physician participation and leadership in voluntary local community planning, and that the Association be committed to oppose vigorously the principle of compulsory areawide hospital planning; (c) expresses approval of the program of the U. S. National Health Survey and recommends cooperation by state medical associations and component societies; and (d) recommendations of Committee on Communications adopted.

In this latter regard, Dr. Beaton commented upon the report of Dr. Annis, presented during the AMA Annual Meeting June last, wherein he recommends an increase in communications media possibly to include a wire communications system between AMA headquarters in Chicago and offices of state medical associations; also, an increase in AMA dues in steps to $100.00. Seeking direction in this regard, the Board expressed the view that it wishes to support an increase in AMA public relations work in the direction of enlargement or greater use of the AMA National Speakers Bureau; perhaps enlargement and more efficient use of the field service; however, it does not support a teletype installation between AMA headquarters and those of the various state and county medical societies.

OTHER BUSINESS

VNB Trust

Valley National Bank, in setting up a "trust" for a doctor of medicine who desires to bequest a sum of money for medical student loans, seeks information as to form of appropriate recognition the Association might extend in his memory. It was suggested that a special "medical student loan memorial fund" could be established to be administered by the Benevolent and Loan Fund Committee.

AMA President-Elect

Pennsylvania Medical Society reports that its Delegation to AMA will place James Z. Appel, M.D., of Lancaster, Pennsylvania in nomination for the office of President-Elect of the AMA at the Association's Annual Meeting in New York City in June, 1965. Received.

Federation of State Medical Boards

The Federation of State Medical Boards of the United States advises its Executive Committee is forwarding a complimentary subscription to the (its) Federation Bulletin to all officers and members of the governing body of this Association in order to maintain the closest possible relationship with the state medical societies. The primary purposes of the Bulletin are to print the proceedings of the Federation's Annual Meetings, to disseminate news of general interest and to publish other items of importance such as accounts of changes in medical education and efforts of state medical boards and societies to help new physicians in their respective states. Received.

ArMPAC — Board of Directors

Dr. Steen, Chairman, ArMPAC Board of Directors, seeks approval of appointments of Charles J. Mehlum, D.D.S. (Phoenix) and Charles P. Neumann, M.D. (Tucson), to membership on the ArMPAC Board of Directors. He indicated further recommendations will be submitted shortly in the areas of veterinary and pharmacy. Appointments of Doctors Mehlum and Neumann approved.

Cutter Aviation

Cutter Aviation, Inc. (Phoenix), in a letter forwarded to a member of this Association, offers a ten per cent (of flight revenue) commission on air ambulance cases.

It was regularly moved and unanimously carried that Cutter Aviation, Inc. be advised that their offer of a ten per cent commission on air ambulance cases is considered unethical medical practice; and that if such discounts are available, they should be passed on to the patient and not to a doctor of medicine.

KLM Royal Dutch Airlines

Dr. Brewer reported that a Mr. Kon P. Erenprais, District Sales Representative of KLM Royal Dutch Airlines proposed that if this Association sponsored a group tour to Europe, approximating thirty or more individuals, it is authorized to invest five percent of the airline revenue in advertising which would be inserted in ARIZONA MEDICINE. Full fare and expenses for two people (the organizer of the group) can also be provided. Received.

People to People

Joel C. Kimball, Director of International Travel Program, advises Arizona has been selected to provide an exclusive medical leaders delegation to visit the countries in South America during 1965 as a special People-to-people project. Duration of mission twenty-four days — cost per delegate estimated at $1,668.00 — fifteen to thirty members desired.

It was regularly moved and unanimously carried that the People-to-People correspondence be received for informational purposes and acknowledged.

Norman Welch, M.D.

Dr. Brewer reported the untimely passing of Norman A. Welch, M.D., President of the American Medical Association, stating that he had, as President of this Association, communicated with Mrs. Welch expressing deepest condolences and sympathy. Received and action approved.

MEETING ADJOURNED AT 3:55 P.M.

Charles E. Henderson, M.D.
Secretary

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Your Insurance Committee and
Board of Directors

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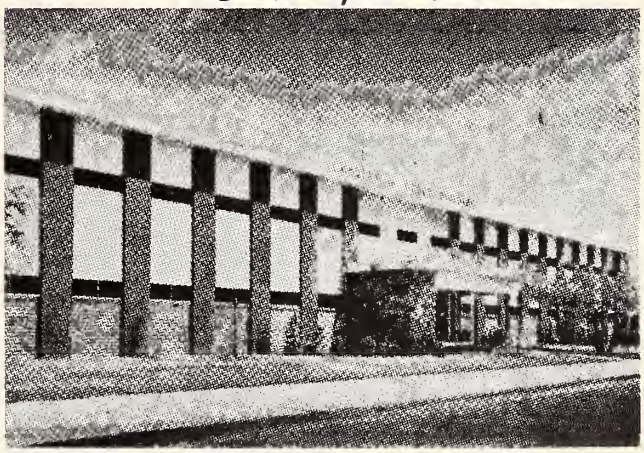
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For Complete Information
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RONALD DEITRICH
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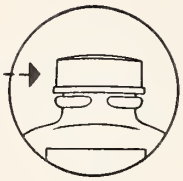
1. Dorfman, W., and Johnson, D.: *Overweight Is Curable*, New York, The Macmillan Company, 1948, p. 16.

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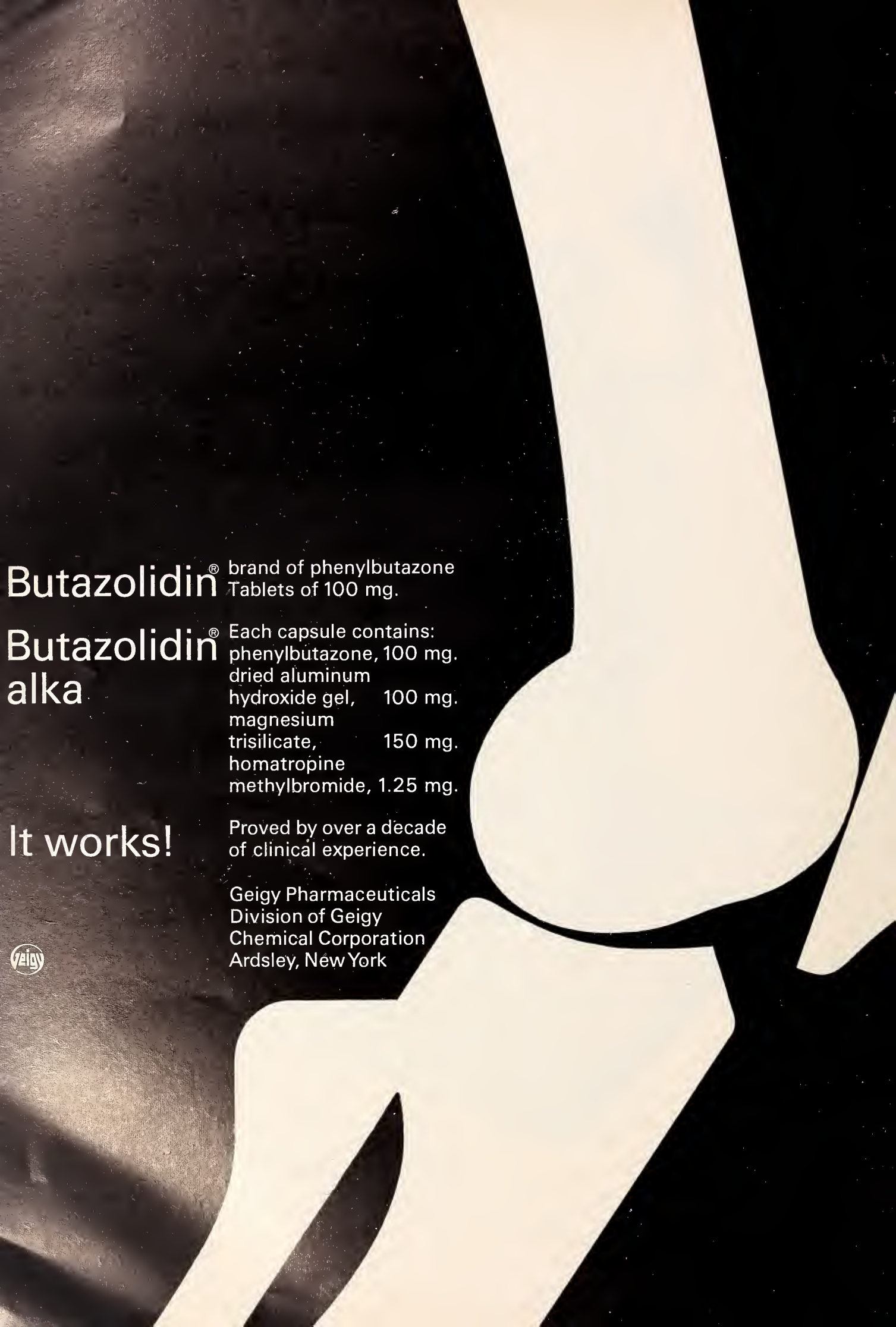
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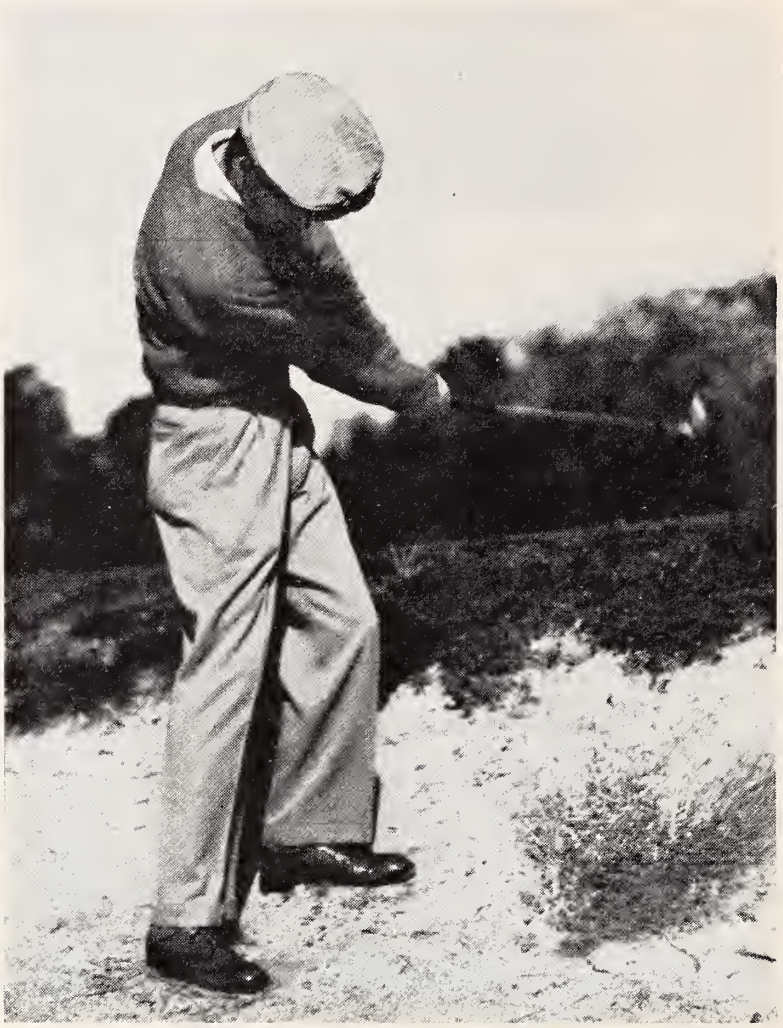
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1. Roach, T. C.: Therapy of Peptic Ulcer, J. Louisiana Med. Soc. *115*:136-139 (April) 1963.
2. Steinberg, H., and Almy, T. P., Drugs for Gastrointestinal Disturbances, Chapter 21, in Modell, W. (editor): Drugs of Choice —1964-1965, St. Louis, The C. V. Mosby Company, 1964, p. 343.

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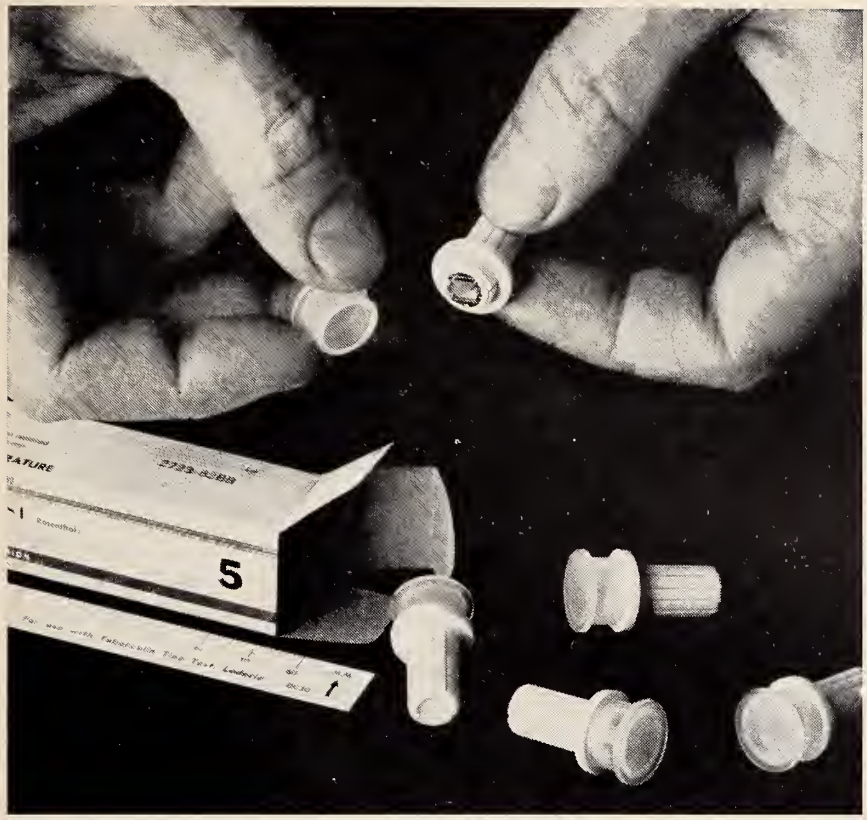
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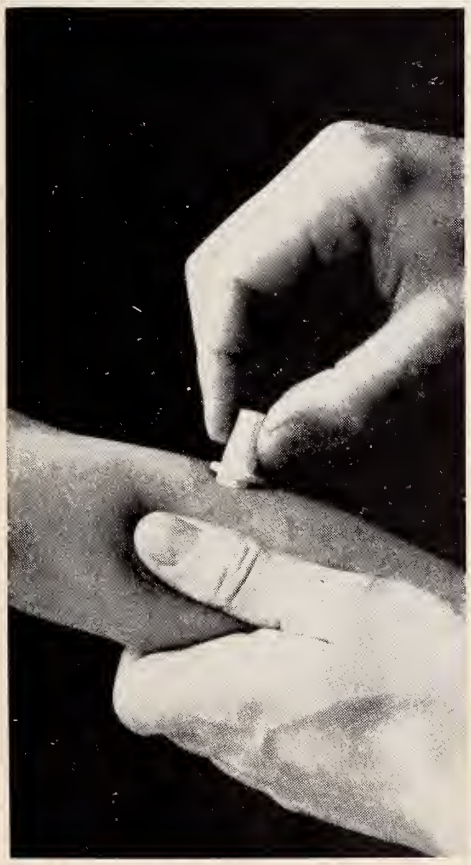
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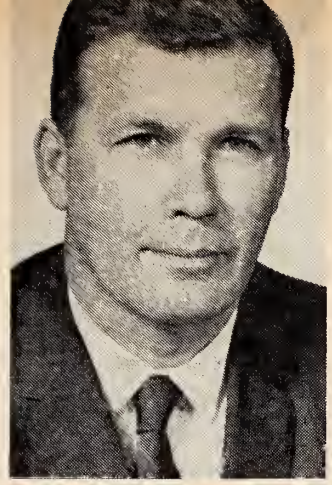


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by Lee B. Brown, M.D.

Iliofemoral Venous Thrombosis

Diagnosis and surgical treatment of iliofemoral venous thrombosis is discussed in this concise article.

Definitions

Iliofemoral venous thrombosis is the formation of thrombus in the iliac and femoral venous systems. It is characterized clinically by a sudden onset, aching pain in the lower extremity, swelling of both the thigh and leg, tenderness over the iliac and femoral veins, cyanosis of the leg and foot, and the variable presence of arterial spasm. The process is usually unilateral, and the left leg is involved more frequently than the right. It is associated with a low but definite incidence of pulmonary embolism. Recovery is slow and exacerbations of the disease are frequent.

A frequent and feared sequela of the disease is the so-called postphlebitic syndrome, or the syndrome of chronic venous insufficiency. The postphlebitic syndrome consists of recurrent episodes of thrombophlebitis, chronic inflammatory changes and fibrosis of the skin and soft tissues, pigmentation of the skin, and ulcerations of the skin. The postphlebitic syndrome constitutes a serious and permanent disability of the lower extremity to a greater or lesser degree[8].

Massive iliofemoral venous thrombosis, phlegmasia alba dolens (milk leg), phlegmasia cerulea dolens (blue phlebitis) are synonymous terms, and their common clinical and pathological denominator is thrombosis of the iliac and femoral venous systems. Phlegmasia cerulea dolen is a particularly severe form of the disease characterized by extreme pain, marked cyanosis, arterial spasm which may be extreme, gangrene, and a high morbidity and mortality[6,14]. Suppurative iliofemoral venous thrombosis is usually a complication of pelvic sepsis, and is an almost unknown form of the disease at the present time. The morbidity and mortality are great.

Dr. Brown has offices at 1130 East McDowell Road, Phoenix, Arizona.

Introduction

Clinical and pathologic characteristics of iliofemoral venous thrombosis have been recognized for many years. Davis described the disease very well in 1923, and he coined the term, "phlegmasia alba dolens puerperarum". The term "milk leg" is said to have originated with Puzos in 1759[1].

Fontaine stated that Leriche was the first to employ thrombectomy without venous ligation in the treatment of this disease[5]. Lawen performed iliofemoral thrombectomy in three cases in 1937[12]. Mahorner[13] introduced thrombectomy in this country in 1954. Fontaine[5], Mahorner et al[12,13], DeWeese et al[3], Haller[7,8] and others have reported sizeable numbers of cases treated by thrombectomy for iliofemoral venous thrombosis. The results have generally been very satisfactory.

Pathologic Considerations

The cause of venous thrombosis is far from settled. A primary inflammatory lesion in the vein wall with resulting thrombosis and a hypercoagulable state of the blood with resulting

thrombosis have both been advanced as general theories Operative trauma, the trauma of childbirth, sepsis adjacent to a vein, chemical irritants introduced by venoclysis, stagnation of the blood resulting from a variety of clinical situations, pelvic tumor, and pre-existing abnormalities of the veins have all been suggested to explain venous thrombosis. The fact remains, however, that thrombosis develops in healthy subjects in the absence of any clearly demonstrable predisposing cause[1,10,11].

Since the early work of Homans[11], supported by the work of Bauer[2], it has been thought that most instances of venous thrombosis of the lower extremities originate in the calf veins. It is well known that venous thrombosis originating in the calf veins may extend to involve the proximal venous system and even the iliac system. There is good reason to believe, however, that iliofemoral venous thrombosis originates in the iliac system frequently, and extends retrograde into the femoral system. This view is supported by clinical finding and venograms taken early in the disease[3,4,7,8].

Clinical Findings

The clinical picture of iliofemoral venous thrombosis is quite characteristic. Pain may be experienced in the lower quadrant of the abdomen, the inguinal region, or the buttock. An agonizing, aching pain in the affected lower extremity is quickly followed by massive swelling of the thigh and leg, and pain increases quickly. The sudden onset and the rapid development of the full clinical picture, in a matter of a few hours, are striking.

The affected extremity is greatly swollen, often three to six inches larger than its mate. It is important to note that both thigh and leg are swollen. The soft tissues of the buttock and lower abdomen may also be involved as the condition progresses. There is tenderness over the fossa ovalis, along the femoral vein in the thigh, and very often in the lower quadrant. The extremity is diffusely tender as a result of the tenseness of the integument. The veins may be distended. Cyanosis of the leg and foot are commonly noted. There may be evidence of arterial spasm. The temperature of the skin is variable, but is very often the same as the mate or slightly increased. Swelling of the thigh and leg and tenderness over the femoral vein are the invariable findings.

Differential Diagnosis

Thrombophlebitis of the saphenous, deep femoral system, lymphangitis with cellulitis, and acute arterial spasm occasionally may need to be considered in the differential diagnosis.

Saphenous thrombophlebitis can be readily distinguished. The thrombosed saphenous vein is readily palpable, rarely is the thigh swollen, edema is never so severe, and superficial inflammatory changes are present.

The intense inflammatory changes associated with lymphangitis and cellulitis, high fever and chills, and frequent prostration distinguish this condition. Edema of the leg may be considerable but is always paralleled by the degree of superficial inflammatory change.

Acute arterial occlusion should never be a problem in differential diagnosis. There is no edema, and this alone is sufficient to make a rapid distinction from iliofemoral venous thrombosis. In acute arterial occlusion, the foot is pale, cadaverous, and cold. There is mottled cyanosis, and sensory and motor changes are early found.

Typical thrombophlebitis of the deep femoral system is infrequently associated with significant swelling of the thigh and, although tenderness may be felt above the knee along the course of the deep femoral vein, and in the popliteal fossa. Tenderness is rarely present in the fossa ovalis. When deep femoral thrombophlebitis, originating in the calf veins, extends to involve the proximal deep femoral system, and even the iliac system, it may be difficult or impossible to distinguish from primary iliofemoral venous thrombosis. In any event, the distinction is not of great moment because the treatment is exactly the same.

Venography

Iliofemoral venography is a simple procedure and can give useful information. It is not necessary to do venography in the average patient.

The patient is placed on the X-ray table and tilted 45° toward the upright. A tourniquet is applied immediately above the ankle to occlude the superficial veins. Forty to fifty cc. of a suitable contrast medium (50% Hypaque, Renovist, Angio Conray) is injected into a foot vein quickly (½ to 1 minute). With the tourniquet still applied, the patient is asked to rise up on the toes of his feet six times. This forces the dye into the deep venous system. Fluoroscopy is helpful in following the head of the dye column. Films

taken at ½ minute, 1 minute, 2 minutes, 3 minutes, and 5 minutes are usually suitable[3,8].

Treatment

One can elect operative or non-operative treatment.

Non-operative treatment consists of bed rest, elevation of the extremity, anticoagulants, thrombolytic agents, and elastic support to the extremity when ambulation is commenced. Recovery is frequently slow and incomplete. Development of the postphlebitic syndrome is fairly frequent. One is then faced with a chronic condition and its treatment is likely to be disappointing.

Operative treatment consists of iliofemoral thrombectomy in combination with anticoagulant therapy, bed rest, and elastic support to the extremity when the patient becomes ambulatory. Ambulation can usually be started at a much earlier date as a rule. The treatment is generally much more satisfactory.

Anticoagulant therapy in either instance should be continued for a minimum of two months on empirical grounds.

If the disease is acute, within 48 to 72 hours of onset, iliofemoral thrombectomy can usually be performed with the expectation of good results.

If the disease is more than seven to ten days duration, the result of iliofemoral thrombectomy will be less than satisfactory or unsatisfactory. It is doubtful if the operation should be offered to patients with long duration of the disease.

Technique of Iliofemoral Thrombectomy

The entire affected lower extremity, lower abdomen, pubes and genitalia are prepared and draped. A stockinette is applied to the entire lower extremity so that it may be manipulated.

Epidural anesthesia, or local anesthesia supplemented with general anesthesia are preferable.

An oblique incision is made one finger-breadth below the inguinal fold and centered over the femoral artery. The common femoral, deep femoral, superficial femoral, and saphenous veins are encircled with rubber drains or tapes.

The deep veins are tremendously enlarged, tense, and often rubbery. There is great edema of the tissues and considerable weeping of watery fluid.

The patient is heparinized.

The first step is the removal of the thrombus from the iliac and common femoral veins. At this point it is desirable that the patient be awake so that he may strain down and thereby assist in the expulsion of the thrombus from the iliac and femoral veins. Abdominal pressure may be applied by the operator manually for the same reason. A venotomy is made in the distal common femoral vein. Current jelly thrombus immediately begins to extrude itself. When the patient strains, or when pressure is applied to the abdomen, the proximal thrombus is very often completely extruded. The complete extrusion of the thrombus is followed by a free gush of blood and good back bleeding.

If the thrombus is not so removed, as indicated by the lack of free back bleeding, other maneuvers can be effectively used. A long clamp (uterine packing clamp) can be cautiously introduced proximally and the thrombus extracted. A thin-walled (No. 20 or No. 24 French) catheter can be introduced into the iliac vein *with suction applied* and thrombus removed. Rarely is it necessary to expose the vena cava and iliac veins through a right extraperitoneal approach. In any event, every effort should be made to remove the thrombus completely.

There are one or two points which should be made at this time. Back bleeding may be scanty because of a competent valve in the distal iliac. Introducing and gently spreading a clamp to open the valve may prove the point. If a catheter is introduced, it may impinge on the promontory of the sacrum and present an impassable obstruction. Occasionally with manipulation it is possible to overcome this. This is particularly true on the left side.

With the complete removal of the thrombus from the iliac and common femoral veins, attention is directed to the distal femoral system. Epidural anesthesia or the addition of general anesthesia to local anesthesia is desirable at this point. Firm squeezing and stroking upward of the calf and thigh may extrude the thrombus. The very firm application of a rubber bandage (Martin) is often very helpful. Suction catheters may be needed to extract the thrombus. One should be sure that the superficial femoral, deep femoral and even the saphenous veins are free of thrombus as indicated by brisk back bleeding. They should be tested separately. Once again, every effort should be made to remove all thrombus material.

The danger of embolism with this procedure has been raised a number of times. This was earlier a major concern. It has been shown that

with the technique described, embolization is rare or unheard of[3]. This is in a sense surprising. Actually, since there is little return of the venous blood from the affected extremity, the pressure in the vena cava tends to extrude the thrombus, and back bleeding is to be expected. It is very much the same as if one put a rent in the side of the vena cava. Nevertheless, the operation should be conducted with this hazard in mind. As noted previously, catheters should be advanced on suction into the femoral and iliac veins.

The steps of the operative procedure are illustrated in Figure 1 and explained in the accompanying legend.

The results of the procedure can be predicted very closely at the operating table. If the thrombus has been completely removed, as indicated by good back bleeding, the result will be very good. Failing in this, the results will be variously compromised.

The wound is closed. A small drain is left in place if need be, and firm elastic support is applied.

Postoperative Course and Care

If the thrombectomy has been successful, there is dramatic subsidence of edema and pain in a twelve to twenty-four period.

Anticoagulation with intravenous heparin is continued for three to five days and then Coumadin is used.

If it is believed that thrombectomy is incomplete, thrombolytic agents may be employed.

Bed rest is continued empirically for five days, or until the edema has completely subsided or almost so.

Ambulation is begun with firm elastic supports when the patient is edema free, or essentially so.

Results of Treatment

As mentioned previously, the principal factor which determines the result of treatment is the completeness of the thrombectomy. If the disease is less than 48 to 72 hours duration, and if the operative technique is adequate, complete thrombectomy is the rule. If the disease is longer duration, or seven days or more, complete thrombectomy is difficult and the results less than satisfactory.

Our experience coincides with that of others. The results of iliofemoral thrombectomy are very satisfactory under suitable conditions. Approximately 75% of the patients will have excellent results, and under less favorable circumstances, the results are variable[3,4,7,8,12,13].

Case Reports

Case 1. Patient: C. L. This 50 year old lady awoke in the early morning with severe pain in the entire left lower extremity. Her left leg became rapidly swollen over a period of three hours and the pain became more intense. Her health was, in general, excellent although she had suffered an injury to the left knee of minor consequence some three weeks prior to the onset of the present illness. There was no history to suggest pulmonary embolism. She had had no difficulty with her right lower extremity. There was no history of previous phlebitis.

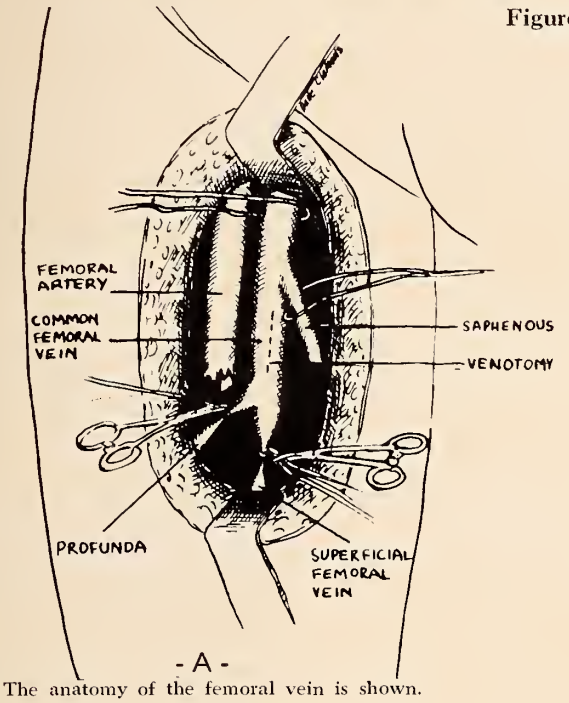
On examination the left lower extremity was greatly swollen. The left leg, at the level of the calf, was three and one-half inches larger than the mate and five inches larger at the level of the thigh. The leg was tender throughout. The temperature of the leg was the same as the opposite side. There was tenderness along the deep femoral vein, in the fossa ovalis, and in the left lower quadrant. The arterial pulsations were present and normal, but the foot pulses were difficult to feel because of the edema. The right lower extremity was normal. The remainder of the examination was not remarkable.

The patient was operated upon some six hours after the onset of her disease. The technique described in the text was employed. Tremendous amounts of thrombus material were removed from the iliac and femoral veins. A good thrombectomy resulted.

Her postoperative course was excellent. There was rapid subsidence of the edema and the pain over a six hour period. The day following the operation, the left leg was two inches smaller at the level of the calf and three inches smaller at the level of the thigh. On the third postoperative day, the two extremities were exactly the same size. The patient was heparinized on the operating table and this was continued for a period of five days, at which time Coumaid was instituted.

Her later postoperative course was quite satisfactory. In two weeks she was fully ambulatory and had resumed her usual activities. She was continued on Coumadin for a period of three months and elastic supports were applied for a period of six weeks, at which time they were slowly removed. Her only complaint was occasional discomfort in her calf.

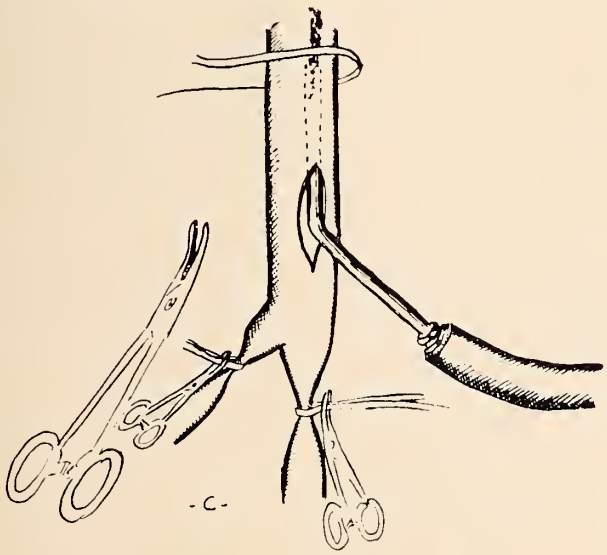
Figure 1



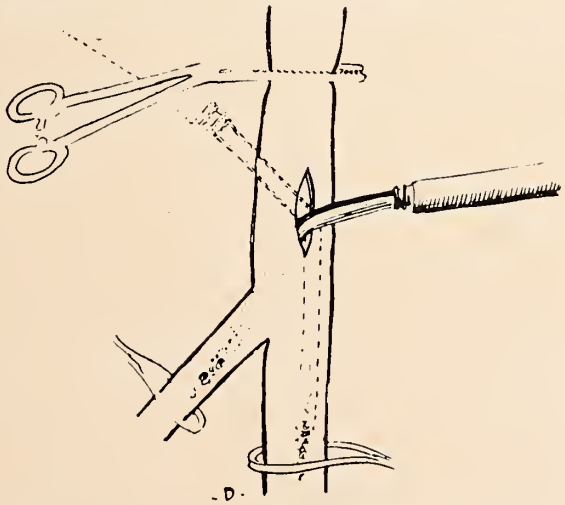
A. The anatomy of the femoral vein is shown.



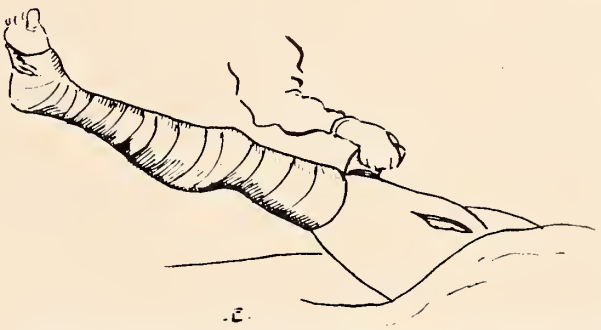
B. Illustrates the anatomy of the distal common femoral vein with spontaneous ejection of the proximal thrombus. The saphenous, superficial femoral and profunda veins are occluded with tapes.



C. Indicates the use of suction and a clamp to extract the proximal thrombus should it fail to come forth spontaneously.



D. Illustrates the removal of thrombus from the superficial femoral and the profunda branches by means of suction catheters.



E. Shows the use of a Martin bandage applied from the foot to the groin for the purpose of squeezing the thrombus from the distal veins, namely the superficial femoral and the profunda. Emphasis has been placed in the text on the complete removal of thrombus material from the common femoral and iliac and from the superficial femoral and the profunda. Finally, the saphenous vein should not be overlooked as a source of thrombus material.

Comment: The characteristic clinical features of the illness are illustrated by this case. It should be noted that the edema involved the entire left lower extremity from the toes to the inguinal ligament. Edema was massive and pain was severe. The left lower extremity is involved much more frequently than is the right. The condition is not frequently bilateral. The rapid improvment following a thrombectomy is typical.

Case 2. Patient: F. A. This 38 year old man underwent an abdominal operation for the removal of a retroperitoneal malignancy. The pathologic findings were consistent with a sarcoma, but the exact type had not been determined. In the course of the removal of this tumor, a rent had been made in the vena cava which was sutured. The patient made an uneventful recovery

from the abdominal procedure. Prior to leaving the hospital, he did notice some discomfort in his calf and very slight swelling of his right foot. He returned to the hospital some 15 days after the date of operation, stating that he had developed a massive swelling of both legs five days previously. The remainder of the history was not pertinent. There was no history of pulmonary embolism.

On examination he was a well developed, well nourished man who was having considerable pain in his legs. He required large doses of narcotics for the control of pain. There was massive edema of both lower extremities and even some edema of the soft tissues of the lower abdomen and the buttocks. The skin of the lower extremities was tense and shiny. There was cyanosis of both feet, but it was very slight. The veins were not visible. Arterial pulsations could not be felt below the level of the femoral arteries because of the massive swelling. There was tenderness in both fossa ovalis, in both lower quadrants, and along the deep femoral venous system. The skin and soft tissues were tender everywhere.

Notwithstanding the fact that this patient's illness commenced at least five days prior to the examination described above, iliofemoral thrombectomy was advised. The procedure was carried out as described in the text, on both sides. It was necessary to approach the vena cava through an extraperitoneal approach to remove the thrombus from the distal vena cava and both iliac veins. A good thrombectomy was obtained.

The patient's postoperative course was striking. There was a rapid subsidence of the edema and pain of the lower extremities over a period of 24 hours. On the 4th postoperative day, his extremities had returned to normal. The calves were four and one-half inches smaller and the thigs six and seven inches smaller as compared to the preoperative measurements. Anticoagulant therapy with heparin was continued for seven days and then Coumadin used. Ambulation was commenced with elastic supports on the seventh day and support was continued over a period of two months.

This man made a good eventual recovery, although he did have occasional swelling of his ankles to a minimal degree after long standing. Coumadin was continued for a period of three months; elastic supports were removed after a period of two months.

Comment: This case is unusual in that both sides were involved. The rather long duration of the process still allowed a successful result. The operative procedure preceding the onset of iliofemoral thrombosis was interesting. It is possible the rent in the vena cava actually initiated the process. The rapid improvement, after satisfactory thrombectomy, is again noted.

Summary

Iliofemoral venous thrombosis, (phlegmasia alba dolens, phlegmasia cerulea dolens), is the usual cause of the postphlebitic syndrome.

The postphlebitic syndrome is a serious condition and its treatment is unsatisfactory.

The customary treatment of iliofemoral venous thrombosis consists of bed rest, anticoagulants, and the later use of elastic support to the extremity. The results of such treatment are generally poor. The incidence of postphlebitic syndrome is considerable.

Iliofemoral thrombectomy has been described and it is a highly effective treatment when employed under suitable conditions.

The success of iliofemoral thrombectomy depends on the complete removal of thrombus material. Short duration of the disease, 48 to 72 hours or less, and proper operative technique favor complete thrombus removal. Although satisfactory results may be obtained when the disease is more than 48 to 72 hours duration, the results are much more variable and tend to be unsatisfactory.

Iliofemoral thrombectomy is strongly recommended in the treatment of iliofemoral venous thrombosis under suitable circumstances.

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Diagnosis and Treatment of Acute Glomerulonephritis in Chrildren



Neil N. Litman, M.D.



Fred G. Smith, Jr., M.D.

A brief informative article that will bring you up to date on this common serious disease.

DURING the past decade, a variety of careful clinical observations[1,2,3] have clarified many of the aspects of the natural history of acute poststreptococcal glomerulonephritis in children and adults. There has also been a few alterations in the concepts of treatment. The purpose of this report is to summarize the important aspects of the diagnosis and management of acute poststreptococcal glomerulonephritis (A.S.G.) The incidence of poststreptococcal glomerulonephritis is highest from 4 to 10 years of age[4,5] and is more prevalent in males than females. It has been known for many years that acute streptococcal glomerulonephritis often follows infections with beta-hemolytic streptococci; however, until recent years the epidemiology has been poorly understood. It has been demonstrated that certain types of beta-hemolytic streptococci have specific nephritogenic properties. Type 12 has been the offending organism[6,7] in the majority of cases but rarely types (4', 25') and Red Lake[8] have also been implicated.

The pathogenesis of acute poststreptococcal glomerulonephritis is not entirely clear; however, the latency period, antibody formation[9], decrease in serum complement[10], titers and other phenomena[11] are suggestive of an "auto-immune" process. The most widely accepted theory is that damage results from interaction of antibody with an antigen which is a constituent of a nephritogenic streptococcus. Streptococcal infection may be followed by a release of streptococcal antigen, which circulates and may become fixed in the glomeruli. A damaging reaction occurs thereby producing nephritis. There have been many excellent studies regarding the pathogenesis[12,13], however, a discussion of these is not within the scope of this report.

The initial clinical picture begins suddenly with smoky brown urine, oliguria, periorbital edema, abdominal pain, hypertension and slight azotemia (Table I). In addition, there is usually evidence of preceding streptococcal infection. In most group studies, hematuria and proteinuria has been present in all cases[14]. In approximately 20% to 50% of the cases[15] there is gross hematuria. Rare instances of acute nephritis with few urinary abnormalities have been reported[16].

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TABLE I
Presenting Manifestations of
Acute Poststreptococcal Glomerulonephritis
Proteinuria
Hematuria
Periorbital Edema
Hypertension
Headache
Abdominal Pain
Oliguria

TABLE II
Laboratory Studies Useful in the Diagnosis of
Acute Streptococcal Glomerulonephritis
Urinalysis
Serum NPN, BUN or Creatinine
A.S.O. Titer
Complete Blood Count
Erythrocyte Sedimentation Rate
Throat Culture

Initial Laboratory Evaluation

The most useful laboratory determinations assisting in the diagnosis of A.S.G. are given in Table II. The urine usually has numerous red blood cells and fresh red blood cell casts. In order to demonstrate the red blood cell casts, the urine must be examined as soon after voiding as possible. The red blood cell cast when present is helpful in distinguishing "renal bleeding" from lower urinary tract bleeding. Proteinuria is usually present during the early phases of the disease but is usually absent after 2-3 weeks. There have been rare instances of A.S.G. with few urinary abnormalities reported in the past[16].

The A.S.O. titer is extremely valuable and is essential in the diagnosis of A.S.G. In the pre-antibiotic era, the finding of a persistently normal A.S.O. titer argued against a previous streptococcal infection and thus against acute streptococcal glomerulonephritis. This correlation no longer holds true since the degree of rise of the A.S.O. titer is related to whether or not the patient received penicillin or other antibiotics at the time of the acute streptococcal pharnygitis. Usually 70-80% of people with streptococcal infections have a significantly elevated A.S.O. titer; however, in patients treated with penicillin early in the course of their infection, the frequency of an A.S.O. response is reduced from 70-80%[17,18] to between 10 and 15%[19,20] and, as a result, patients with A.S.G. may never have an elevated A.S.O. titer. A normal titer can be taken as evidence against an antecedent streptococcal infectio nonly if the paitent has not been treated with antibiotics.

Other streptococcal antigens, as: antistreptokinase (ASK), antihyaluronidase (AH), desoxyribonuclease B (DNase B), and diphosphopyridine nucleotidase (DPNase) may be useful in providing evidence of preceding streptococcal infection[21] in those patients with manifestations of acute nephritis who fail to show an elevated A.S.O. titer.

If the patient has hypertension, an electrocardiogram and chest x-ray should be performed. In cases where there is evidence of peripheral edema, serum albumin, globulin and cholesterol should be determined.

Differential Diagnosis

It is particularly important to differentiate serious urological conditions from acute nephritis. The most important of these are tumors of the genito-urinary tract, renal trauma, and bleeding into a hydronephrotic kidney. At times, the differential diagnosis between acute nephritis and laceration of the kidney may be difficult to differentiate because of the increased frequency of abdominal pain and tenderness, as well as a history of trauma in children in this susceptible age group.

In equivocal cases, one may wait for the results of the A.S.O. titer before ordering an intravenous urogram. A normal A.S.O. titer or absence of a progressive rise in the titer indicates that the preceding streptococcal infection was incompletely treated or that the basic problem is not acute streptococcal glomerulonephritis.

Gross hematuria with lower urinary tract infection may simulate acute nephritis; however, the absence of red cell casts and the presence of urinary tract symptoms plus the occasional finding of marked mucosal inflammation in young girls help differentiate these conditions. Nephritis may also be associated with anaphylactoid purpura[22]. Twenty-five per cent of patients with this disorder have hematuria, proteinuria, or both; however, the presence of arthralgia, nonthrombocytopenic purpura and abdominal pain usually differentiates it from A.S.G. The morphologic alterations seen in the renal biopsy specimen are distinctly different from the lesions seen in acute nephritis. Hematuria and proteinuria may also be due to exacerbation of previously unsuspected chronic glomerulonephritis[23], lupus nephritis[24,25], periarteritis nodosa[26], and familial

nephropathy[27]. The latter disorder is frequently associated with nerve deafness. The prognosis in males with this condition is poor while in females, the course is usually benign. These patients usually have recurrent episodes of hematuria initially; however, all males eventually develop other signs of chronic glomerulonephritis.

There are many less common conditions associated with the "nephritic syndrome" such as glomerulonephritis in infants with hemolysis and thrombopenia[28], thrombotic thrombocytopenic purpura[29], rheumtaic states[30,31], etc. The description of these entities are beyond the scope of this paper.

Treatment

There is no specific therapeutic agent for this disease. Bed rest is important during the acute phase of the disease when hypertension and congestive failure may be a problem. There is no evidence that bed rest beyond this point is beneficial. There are obvious psychologic disadvantages to prolonged bed rest[14], therefore most children should be back in school within 1½ to 2 months. During the acute phase, salt retsriction is advisable for it has been helpful in shortening the period of fluid retention. Potassium and protein restriction are unnecessary unless acute renal failure supervenes.

The most serious complications of acute glomerulonephritis result from hypertension and renal shutdown. Cerebrovascular accidents and cardiac failure may be prevented by appropriate therapy of the hypertension. The drugs of choice in the treatment of hypertension are reserpine by hydralazine[33]. Because of the prolonged effect of intramuscular reserpine, it should be given only once every 12 to 24 hours; 0.15 mg per kilogram when needed. Intramuscular hydralazine, 0.1 mg per kilogram, may be administered every four hours, if needed. Therapy should be initiated when both the systolic and diastolic pressures are above 140 or 90, respectively.

Our practice is to give reserpine when the diastolic pressure is between 90 and 110 mm Hg. Hydralazine is added when the diastolic pressure is over 110 or when reserpine alone fails to control the hypertension. Intramuscular magnesium sulfate is the next drug of choice for treating the hypertension. A low salt diet is recommended in the presence of hypertension; otherwise, a regular diet may be given.

In most instances, the danger of renal insufficiency is so minimal that no special measures are required; however, during the first 6-12 hours in the hospital, it is important to prove or disprove the presence of acute renal failure. Therefore, fluids should be given cautiously as a basal requirement and urine output recorded. If observations indicate that the urine output is decreasing, the physician then may face a serious problem. Measures used for treating acute renal failure, such as restriction of fluid and electrolyte intake, adequate caloric intake, and daily weight recording should be employed. If the patient becomes anuric, other measures, such as cation exchange resins, peritoneal dialysis and hemodialysis may have to be carried out.

Although antibiotic therapy of streptococcal infections has been shown to reduce the incidence of acute glomerulonephritis[34], there is no evidence that penicillin will effect the course of the disease once it has been established. During the past 4-5 years, it has been our practice to treat with penicillin only those patients with positive streptococcal cultures. We have not experienced any untoward effects from this policy. Prophylactic penicillin likewise is not administered to patients who have had acute streptococcal nephritis.

Prognosis

It is generally agreed that over 90% of children with acute streptococcal glomerulonephritis recover completely[35,36], incontrast to adults where 70-80% recover completely[37]. The difference in recovery rates between children and adults is unexplained. Persistence of the hematuria past 4-6 months or recurrence of gross hematuria does not appear to alter the favorable outcome. Persistence of the proteinuria past 4-6 months, however, does indicate a poorer prognosis. Once recovery takes place and the urinary sediment remains normal for one year, permanent cure is reasonably assured.

A very small number of children with acute nephritis do not completely recover. They either progress to chronic glomerulonephritis or stay in the latent phase with persistent urinary abnormalities with few, if any, findings of progressive renal failure. Generally, these patients have more severe clinical manifestations from the very onset.

Usually the urinary abnormalities clear after several months but, as mentioned above, may

persist for 6 to 12 months. Patients should be followed at monthly intervals after the acute phase until the routine urinalysis and sedimentation rate have returned to normal. After the routine urinalysis has returned to normal, the Addis count is utilized to determine further improvement. We have been following our patients every 3 to 4 months for the first year and, if the Addis count is normal at the end of a year, the patient is considered "cured" and discharged from the clinic.

Summary

Acute streptococcal glomerulonephritis is a disease presenting many varying manifestations. The correct diagnosis is usually not difficult in spite of the lack of any single specific laboratory test. The treatment is usually symptomatic; however, occasionally more specific therapy has to be directed to the complications, acute renal failure, hypertension and congestive heart failure. The prognosis is better in children than in adults and considerable more data remains to be accumulated before the natural history of this disease in children is clearly delineated. At the present time, considerable attention and effort should be directed to the prevention of acute streptococcal glomerulonephritis by early and adequate treatment of streptococcal infections.

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PRODUCTS OF RESEARCH THAT SAVE LIVES

Let the law deal harshly with any dishonesty, false claims, or unsafe practices found in the drug industry, but let us not encourage unlimited power by the FDA which could destroy the tree laden with the fruit of honest research because of one ailing branch. We would suggest . . . a resolution of confidence in the pharmaceutical industry whose products have saved the lives of so many children. It is easy to forget that the life of President Lincoln's son could probably have been saved by antibiotics. — Robert F. Lorenzen, M.D., in *Arizona Medicine*, 21: 469, (June) 1964.

Today, eggs are frequently incriminated as carriers of Salmonella infection. This epidemiologic study presents a local Salmonella outbreak which supports this thesis.

THE incidence of salmonellosis in the United States is difficult to ascertain. Only incidentally reported outbreaks and summaries of isolations appearing in the literature are available for determining the importance and apparent increase of this disease.[1] The epidemiology of salmonellosis becomes increasingly complex with today's modern food technology and distribution. Systematic reporting of infections of both man and animals is necessary for a clear understanding of the disease.

AN OUTBREAK OF SALMONELLA NEWINGTON AT A BOARDING SCHOOL

This report deals with an outbreak of salmonellosis that occurred in a large boarding school in the southwestern United States. The probable dissemination of the etiological agent from an interstate shipment of fresh eggs, through improper food handling, is described.

Description of the Outbreak

On the afternoon of October 5, 1959, the physician in charge of the school clinic reported an apparent outbreak of "intestinal flu." Thirty-five cases of acute gastroenteritis among girls residing in two dormitories had been reported to the school clinic October 2, 3, 4, and 5. Cases from other dormitories were reported on October 5 and 6.

Acute cases were characterized by a sudden onset of nausea and vomiting, accompanied by chills, fever, sore throat, cramps, and diarrhea. In some of the less severe cases only sore throats and low grade fevers were reported. Symptoms usually persisted 48 hours or longer.

The enrollment of the school consisted of 970 high school and junior high students housed on the campus in eight dormitories and segregated by sex and age. All meals were obtained from a central cafeteria where students in each dormitory were served as a group. Boys and girls used separate serving lines. Occasionally, some students ate at a small snack bar on the campus and at off-campus restaurants. Water supplied to the school was furnished from a municipal system and was of good quality.

by

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Mr. Mackel is bacteriologist, Technology Branch, Communicable Disease Center, Phoenix, Arizona.

Mr. Petersen is assigned to Division of Radiological Health, Rockville, Maryland.

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Investigation

On the morning of October 6, clinical histories were taken and throat washings and blood specimens for virus studies were obtained from 10 acutely ill students. Rectal swab specimens for bacterial and virus examination were obtained from six of these students.

The specimens for bacterial isolation were plated on SS and MacConkey's agar and placed in tetrathionate brilliant green enrichment broth. All mediums were incubated for 18 hours at 37 C. A loopful of the enrichment broth was then streaked to brilliant green agar and incubated for 18 to 24 hours at 37 C.

The SS agar was examined for *Shigella* and *Salmonella;* MacConkey's agar was examined for *Shigella, Salmonella,* and enteropathogenic *Escherichia coli;* brilliant green agar plates were examined for *Salmonella.*

Presumptive isolations of *Salmonella* from five of the six specimens examined were observed on the morning of October 7. These organisms subsequently were identified as *Salmonella newington.*

The investigation was promptly redirected to determine the source and extent of this apparent *Salmonella* outbreak. Detailed food histories were obtained from 29 acutely ill students by using questionnaires prepared from cafeteria menus for the 5 meals preceding the epidemic (Table 1).

Rectal swab specimens were obtained from each person interviewed and laboratory procedures were modified for specific recovery of *Salmonella.* Rectal swab specimens were placed in brilliant green tetrathionate enrichment broth, incubated for 18 to 24 hours at 37 C, then streaked on brilliant green agar. Enrichment broths from which Salmonella was not isolated were held at room temperature and restreaked after intervals of 48 and 72 hours.

Rectal swab specimens were taken from the food handlers of the school cafeteria and from two school officials who became ill with diarrhea on October 5 and 6 during a hunting trip.

Material for bacteriological examination was obtained from various areas in the kitchen, from the toilets in the girls' and boys' rest rooms, and from available portions of left-over food or ingredients of some meals served during the previous week.

Observations

Salmonella newington was isolated from 16 (55 per cent) of the 29 acute cases examined and from 24 (67 per cent) of 36 students in a control group. A majority of the ill students received tetracycline immediately after the presumptive isolation of *Salmonella* was reported and subsequent *in vitro* sensitivity tests indicated that the strain involved was sensitive to this drug.

Six of eight food handlers were infected with the organism, one of whom reported an illness three weeks prior to the outbreak. One of the two school officials who became ill was positive for *S. newington.*

Epidemiological data suggested that the source meal for the infection was consumed either early Friday, October 2, or on Thursday evening, October 1, since the incubation period for salmonellosis is usually more than 8 hours and the first reported acute cases had onsets immediately after supper on October 2 (Figure 1).

The school official who became ill and had a positive stool isolation had consumed a sandwich made from the beef. The other official ate no food from the cafeteria during the outbreak period.

Results of food histories for the meals consumed by the control group and acutely ill group indicated that only the Thursday, October 1, evening meal included a significant number of foods associated with high infection rates for foods eaten and not eaten.

Roast beef was suspected as the contaminated food. The infection rate for 36 control students who ate the meat was as high as was the rate for any other single item (Table 1) and most of the other items could be eliminated on the basis of high infection rates in the group not eating the food.

On Wednesday, September 30, 30 roasts were cooked at the same time at 300 F for about 8 hours or 20 to 25 minutes per pound. After cooking, they were covered and placed in a cold room (41 F) until late the next morning, October

1, when they were sliced on the meat cutting block. The slicing was completed about 2 p.m., when the meat was layered in deep pans, water added, and then steamed slowly at 200 F. At 4:30 p.m. the pans were placed in steam tables on the serving line for the 5:30 p.m. meal.

Gravy was prepared separately with artificial coloring, spices, flour, and water, and contained none of the meat or its juices.

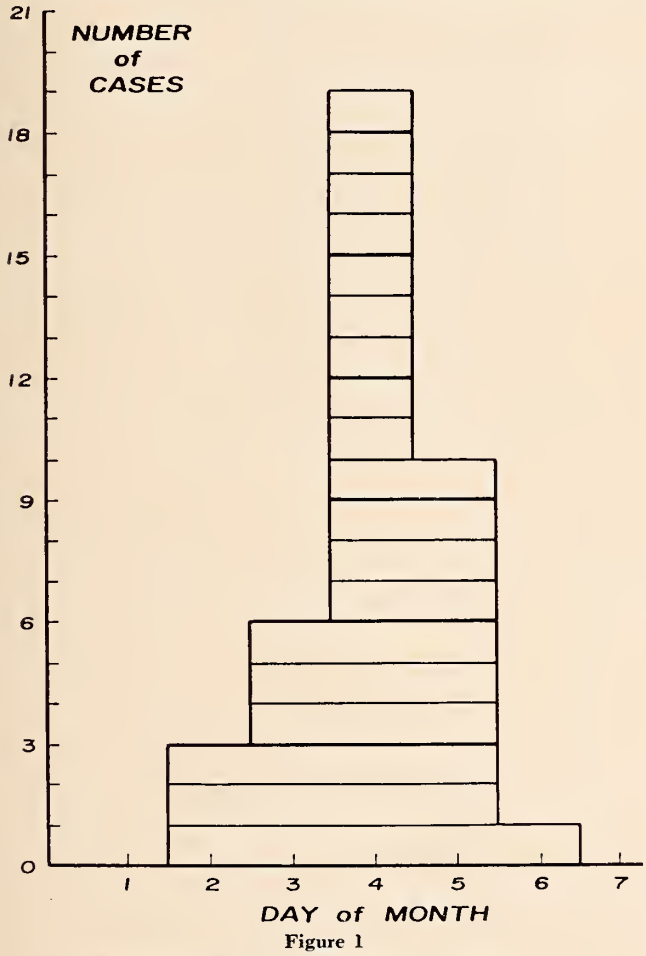


Figure 1

One of the infected food handlers worked in the kitchen on Wednesday, September 30, and ate some of the meat at that time. He was off duty Thursday, October 1, and Friday, October 2. This worker had suffered severe diarrhea early in September following a visit with his family. One of the children in this family when examined on October 8 was positive for S. *newington*.

Salmonella newington was isolated from the toilet bowl in the boys' rest room, from the meat slicing block, and from two fresh eggs selected at random from the cold room. Eggs prepared for breakfast usually were broken into pans at the meat chopping block.

The clinical attack rate for gastroenteritis and the infection rate for S. *newington* for each dormitory suggest that the acute illness rate was highest among the students served last (Table 2). The extended incubation time apparently produced sufficient numbers of organisms to produce more severe symptoms.

Discussion

The roast beef which appeared to be the source of the S. *newington* infections probably became contaminated during the slicing operation on the meat chopping block.

Incubation of the organisms could have taken place during the warming-up and serving periods. Fresh eggs may have served as the indirect source of infection, having spilled when broken into pans on the meat block. Eggs or food containing fresh eggs was not served during the preoutbreak period except for breakfast, but food histories failed to implicate breakfast meals as the source of infection.

The source of the eggs could not be traced. They were purchased from a local distributor through an out-of-state wholesaler who obtained his supply from three or more large producers.

Another possible route for contamination of the roasts could have been a food handler. If a roast or roasts were contaminated by a food handler, the meat chopping block could have been contaminated during the slicing operation. Other roasts may then have become contaminated and incubation could have occurred during rewarming and on the steam table. A food handler may have been infected earlier while handling raw eggs, or the employee reporting illness early in September may have been infected at that time. A second food handler found to be infected carried the organism for more than 60 days. The chief cook who sliced the roasts was negative for S. *newington*.

Experience has shown that meat chopping blocks should not be placed in immediate food preparation areas[2] and that cooked food never should be taken back to the meat chopping block for slicing or further preparation.

Flu-like symptoms often have been reported during the early stages of salmonellosis, prior to or sometimes without apparent gastroenteritis, and therefore should be suspected during similar undiagnosed outbreaks.

Table I

FOOD HISTORIES ON 36 CONTROL STUDENTS

Meal	Food	Infected Individuals				Uninfected Individuals				Infection Rate %	
		Eaten	Not Eaten	Unk.	Percent Eaten	Eaten	Not Eaten	Unk.	Percent Eaten	Eaten	Not Eaten
Thurs., Oct. 1 Breakfast	Oranges	21	3		87	10	2		83	68	60
	Oatmeal	7	17		29	9	3		75	64	85
	Plum Jam	16	8		67	10	2		83	62	80
	Bacon	19	4	1	82	11	1		92	63	80
	Buttered toast	22	2		92	11	1		92	67	67
	Milk	23	1		96	11	1		92	67	50
Thurs., Oct. 1 Lunch	Chop Suey	12	12		50	10	2		83	65	86
	Steamed Rice	16	8		67	10	2		83	62	80
	Corn	22	2		92	11	1		92	67	67
	Cold tomatoes	11	13		46	8	4		67	58	76
	Carrot sticks	9	15		37	8	4		67	53	79
	Bread-butter	23	1		96	12	0		100	66	100
	Cherry cobbler	13	11		54	11	1		92	54	92
	Milk	22	2		92	12	0		100	65	100
Thurs., Oct. 1 Supper	Roast beef	24	0		100	11	1		92	69	0
	Potatoes	20	4		83	11	1		92	65	80
	Green beans	21	3		87	9	3		75	70	50
	Lettuce wedges	17	7		71	8	4		67	68	64
	Bread-butter	23	1		96	12	0		100	66	100
	Vanilla pudding	13	11		54	7	5		58	65	69
	Milk	23	1		96	11	1		92	68	50
Friday, Oct. 2 Breakfast	Tomato juice	17	7		71	10	2		83	63	78
	Farina/raisins	10	14		42	6	5	1	55	63	74
	Buttered toast	23	1		96	11	1		92	68	50
	Apricot jam	11	12	1	48	7	5		58	61	71
	Scrambled eggs	16	8		67	11	1		92	59	89
	Milk	23	1		96	11	1		92	68	50
Friday, Oct. 2 Lunch	Baked beans	20	4		83	11	0	1	100	65	100
	Buttered cabbage	9	14	1	39	2	3		75	50	82
	Sliced cheese	19	5		79	12	0		100	61	100
	Bread-butter	15	9		62	10	2		83	60	82
	Orange gelatin w/fruit cocktail	18	6		75	11	1		92	62	86
	Pickles	10	14		42	5	6		50	63	70
	Milk	21	3		87	12	0		100	64	100

Table 2

Attack Rates and Infection Rates by Dormitory

Dormitory	Sex	Eating time	Population	Number of Acute Cases	Attack rate percent	Survey Results Total	Infected	Percent
A	M	5:30 pm	200	1	0.5	1	0	—
B	F	5:30 pm	94	5	5.3	0	—	—
C	M	5:40 pm	120	0	0	9	5	55.5
D	F	5:40 pm	126	8	3.5	3	3	100.0
E	M	5:45 pm	120	1	0.8	5	2	40.0
F	F	5:45 pm	72	2	2.8	6	4	80.0
G	F	5:45 pm	100	16	16.0	6	6	100.0
H	F	5:45 pm	37	10	27.0	6	6	100.0

Summary

Investigation of an outbreak of *Salmonella newington* in a large boarding school indicated that roast beef was contaminated either from a meat chopping block earlier contaminated with raw eggs or from a food handler. Predominant early symptoms were systemic or "intestinal flu-like."

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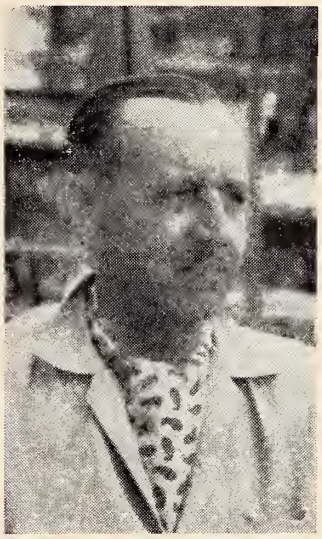
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Figure 1. Acute gastroenteritis cases by date of onset in Salmonella newington outbreak at a boarding school in Arizona, October 1959.

Leiomyoma of the Ileum with Traction Diverticulum



Denis L. Shaw, M.B., F.R.C.S.



Ian Stewart, M.D.

Doctors Shaw and Stewart present a rather concise review of a relatively uncommon problem of small bowel neoplasm, together with an interesting case report.

THE muscle tumours of the gastrointestinal tract are rare. Golden and Stout (1941) found 53 examples in the records of the records of the Presbyterian Hospital, New York in the period 1913 to 1940. Of these 23 were incidental findings at autopsy and 2 only were in the ileum. Clinical cases numbered 30 and only 3 of these were in the ileum.

Smith (1939) in describing a malignant muscle tumour of the ileum, analysed 109 muscle tumours of the small gut. 19 of these were submucosal tumours of the ileum, producing acute or chronic obstruction, and 25 were subserosal ileal tumours. The subserosal tumours came to light in the following ways: Haemorrhage 7: Incidental finding at operation or autopsy 6: Intestinal obstruction 7: Indigestion 2: Perforation 1.

Weber and Kirklin (1942) found only 14 cases of leiomyoma of the small gut in the Mayo Clinic records for 32 years.

Victoria Hospital, Keighley, Yorkshire, England.

Case History

A man aged 40 was admitted to hospital with a history of gradually increasing central abdominal pain for 3 hours. He had nausea but had not vomited. He had had a normal bowel action in the morning.

On examination the abdomen was not distended and moved with respiration. There was tenderness and guarding in the right iliac fossa. There was no abnormality on rectal examination. The temperature was 97° F., Pulse 80 and Respirations 20.

Operation

Laparotomy was carried out the same evening. Turbid fluid was present in the right iliac fossa. The appendix was normal. Bleeding was occurring from the surface of a bilobed subserous tumour of the ileum, situated 3 feet from the ileocaecal valve. This, with 5 inches of the gut, was resected and an end to end anastomosis carried out

Pathology

Attached to the outer aspect of the gut was a globular tumour 1½ inches in diameter, to the side of which was attached a second lobe of equal size.

Within the gut there was a nipple like prominence ½ inch in diameter, in the centre of which was a tiny hole from which bloody fluid emerged when the tumour was squeezed. When cut the attached lobe was found to be firm white tissue with a cavity containing clot. The second lobe was mainly a cystic cavity containing old clot, with a rim of white tissue at the periphery.

Histology

Within the gut, the mucosa showed no evidence of neoplasm. The white tissue was composed of whorled spindle cells with no nuclear abnormalities. Running up from the orifice in the centre of the nipple like prominence in the gut and ending in the centre of the first lobe of the tumour there was a very narrow diverticulum lined by intestinal mucosa, which was partly disrupted by suppurative infiltration.

Discussion

This tumour is a leiomyoma of the histologically benign type. Golden and Stout say that no clear distinction can be made between simple and malignant growths on histology alone and that the presence of metastases is the only proof.

The situation of the tumour suggests that it may have arisen in the wall of a Meckels diverticulum. Equally well the diverticulum could have resulted from traction of the mucosa during tumour growth The abrupt ending of the diverticulum in the centre of the first lobe is consistent with the latter origin.

Nygaard and Walters (1941) described a tumour of low grade malignancy which they considered was derived from a Meckels diverticulum. Neither in the gross description of this tumour, nor in their histological findings is there any evidence of a diverticulum. Similarly one of Golden and Stouts cases was said to be derived from a Meckels diverticulum. They state that there was a diverticulum. 4 feet from the ileocaecal valve "involved in a tumour mass," but in the histological examination no evidence is given of a diverticulum.

Summary

A case of apparently benign leiomyoma of the ileum is described which manifested itself by acute inflammation of an associated diverticulum which appeared to have resulted from traction on the intestinal mucosa.

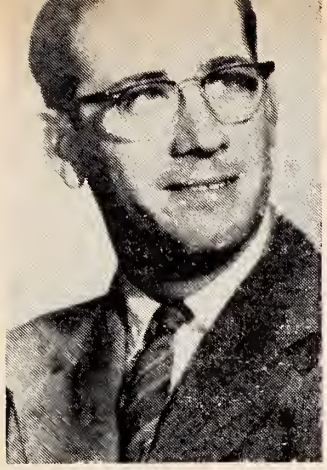
We are indebted to Professor R. A. Willis for his confirmation of the identity of the tumour and the origin of the diverticulum.

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THE RISING TIDE OF GOVERNMENT MEDICINE

I have yet to see any desk-bound administrator or full-time politician who knows as much about the needs of a body as does the person who attends that body on an individual basis hour after hour. Concern and caution are advisable, of course, for all-drug maker, drug prescriber, drug dispenser and drug user. But when lay judgment is substituted for professional judgment, when the sick refuse to take what is wisely prescribed, when consumer representatives and motivation hunters try to resolve medical problems without medical knowledge when the medical profession is notified of government interventions in drug use through the popular press rather than through normal professional channels, when the public receives medical information about drug reactions before the profession is informed, the already ailing members of the public will suffer even more. In fact, they will suffer more than any other group since it will be their own bodies which are deprived of needed medical counseling and remedies. Austin Smith, M.D., in *Oklahoma Medical Journal*, 57: 8 (August) 1964.



by Harry F. Steelman, M.D.

Headache, Its Causes and Treatment

"And this is the reason why the cure of many diseases is unknown to the physicians of Hellas, because they are ignorant of the whole, which ought to be studied also; for the part can never be well unless the whole is well."

Socrates in the Charmides of Plato

HEADACHE is so common a complaint that the practicing physician should be aware of the different types and methods of handling them.

A discussion of headache should be preceded by a review of the evidence of pain sensitive structures within the head. These have been shown to be the major arteries and venous sinuses of the dura mater. Except for the branches of the basal arterial circle of Willis, the intracerebral arteries have not been proved to be pain sensitive. The external carotid artery branches are especially sensitive to distention. The adequate stimulus to produce pain is primarily traction, or distention of the blood vessels, although irritative factors such as subarachnoid hemorrhage or bacterial toxins are known to produce headache.

The physician should remember that headache is merely a symptom of a disease. The best results will be obtained when the disease is accurately diagnosed and treated, provided such methods are available.

Evaluation of the Individual Patient

A detailed history is first obtained, which should include the age of onset, the location and character of the headache, the time of day of the onset, the severity of the pain, the frequency of attacks, and the presence of associated symptoms. A discreet inquiry into the patient's life situations should be made. The manner in which the patient speaks and describes the symptoms will often give the physician a clue to the diagnosis.

Following the history, a complete physical and neurological examination should be done. In most patients this will be entirely normal. Following the history and examinations, accessory laboratory procedures such as x-rays of the skull, cervical spine, and paranasal sinuses should be done. If no abnormalities are found, symptomatic therapy is justified. The patient's progress should be followed and response to treatment assessed.

If no response is obtained, the patient should be referred for neurological evaluation. This would include electroencephalography and occasionally a lumbar puncture, and air studies or radioactive uptake studies to determine if an intracranial neoplasm or hematoma is absent or present. Further handling will be determined by correlation of these laboratory procedures with the clinical condition.

When all tests are normal and there is a strong suspicion of emotional factors causing the symptoms, psychiatric evaluation for diagnosis and recommendation for treatment is indicated.

Psychogenic

The description of the discomfort given by the patient may be somewhat unusual, such as; feeling of a spike driven into the head, band-like constriction drawing, pressing, or an "all-gone"

The opinions expressed in this paper are those of the author, for which he accepts full responsibility. The reader has been spared the odium of a ponderous bibliography. If anyone would like further reference to various medications and methods of treatments, they will be supplied upon request.

sensation. The distribution does not conform to anatomical distribution. It does not respond to the usual analgesic preparations. Furthermore, diligent inquiry into the history will reveal a considerable amount of psychopathologically important material. In effect, then, psychogenic headache is only one facet of the neurotic personality. Therapeutically one cannot hope to relieve the patient of his symptoms by merely abolishing the headache. Tranquilizers are justified as a temporary measure, although the results are often disappointing. Personality reorientation with the help of a psychiatrist has the best chance of providing permanent relief.

Migraine

This is an episodic, often familial type with onset in the second decade of life. Occasionally children under the age of ten are subject to them. The migraineur usually knows when he is liable to have an attack. The prodramata vary from a feeling of malaise, anxiety and depression to the classical teichopsia, viz. scintillating scotomata, numbness and tingling of one half of the body. Occasionally there will be an ophthalmoplegic type paralysis of the extra-ocular muscles. This can be differentiated from other pathology, such as tumor at the base of the skull or internal carotid aneurysm, by x-rays or arteriography. People subject to migraine are usually hardworking, perfectionistic, tend to be self-accusatory and unsatisfied with their environment or way of life. The pain begins as a unilateral dull ache, often in the temporal region and progresses in a crescendo manner until a pain of high intensity develops, often with nausea and vomiting. These people, when they first consult a doctor, have usually found out that an attack can be aborted by taking some analgesic medication and sleeping it off. Weekend or "let-down" headaches after a strenuous week of activity are common. Sometimes repeated attacks of migraine occur, usually alternating from one side to the other, lasting days or weeks. This is known as status hemicranicus. When this occurs an underlying psychiatric depression should be suspected and treated. After an attack the patient usually feels exceptionally well or euphoric. Occasionally, however, there may be a "hangover" lasting a day or two.

There have been studies attempted to relate migraine and epilepsy, but these are not conclusive. Migraine equivalents have been described. The usual symptomatology is paroxysmal abdominal pain and vomiting. This type usually occurs in pediatric practice. It is a most difficult diagnosis to make and it is usually one of exclusion.

The course of migraine is unpredictable because the basic mechanisms precipitating the attack are poorly understood. It is often a lifetime affliction, though the headaches tend to become less frequent and severe after the age of forty or fifty.

There is no known cure but most of the patients can be helped. First, the patient must become aware of the emotional situations which precipitate them. These are usually unexpressed anger, hostility or unresolved tension. In some patients, guilt feelings with self-castigation, represent a hangover from tribal culture. Secondly, the treatment of the paroxysm consists of the use of salicylates, phenacetin and caffeine with or without oral ergot preparations at the onset of the headache. The last group mentioned may be used parenterally, although it should be remembered that they cause frequent side effects consisting of protracted vomiting and retching, which may be as troublesome as the pain. Dihydroergotatime (DHE45) is a dehydrogenated form of ergotamine tartrate and is sometimes used in patients who cannot tolerate ergotamine. The change in chamical formula reduces its constrictive effect on smooth muscle. By the same token, the effect on the headache is often reduced. An icebag to the painful part of the head is usually helpful

Recently a powerful medication (Sansert, Sandoz) has been used to prevent migraine. It blocks the action of serotomin and modifies the episodes of vasoconstriction and vasodilation which accompany the migraine episode. The results for the most part are good, although side effects should be looked for. They are usually dizziness, vomiting or peripheral vasoconstriction. If they occur it may be necessary to stop the drug. In the dose of three or four tablets a day, the cost ($20-$25) per month may be prohibitive to some patients. It should not be used in patients with coronary or peripheral vascular disease and pregnancy. This drug should be reserved for the severe and frequent types. The value of the drug in any one person may be difficult to assess if the headaches are a rare occurrence. Since the drug has been in use for only a few years and has been released for general use only about two years, the value of its

use in long term management of the migraineur is yet to be determined. Satisfactory results can be attained in 50-70% of migraine patients.

Psychotherapy directed toward personality reorientation may be of value.

The basic physiological mechanisms of the migraine syndrome have been worked out in considerable detail. The painless initial phase or prodromata are caused by vasoconstriction in the intracerebral arteries causing the scintillating scotomata, numbness and occasionally muscular weakness. This phase is followed by vasodilatation primarily in the pain sensitive branches of the external carotid artery.

Various surgical procedures such as ligation of the external carotid artery or cervical sympathectomy have met with indifferent success. Section of the trigeminal nerve has been successful, probably because of the denervation of the pain sensitive dura mater. This procedure is a difficult one and has the disadvantage of producing analgesia of the cornea and forehead. Before surgery is done, fractional procaine blocks of the three trigeminal nerve trunks should be done to delineate the innervation of the pain sensitive structures. Fortunately surgery of migraine is a rare procedure that should be reserved for the most intractable pain.

Tension Headache

This type of headache represents somatization of emotional conflicts which result in painful muscle spasm. They are usually located in the suboccipital region with radiation to the temporal or vertex portions of the head. The patient may or may not be aware of situations which trigger the headaches. Psychiatric treatment will not usually produce immediate results, though long term therapy is rational and justified provided cooperation of the patient can be obtained. Medication should be started as soon as the diagnosis is secure. Fiorinal tablets (Sandoz) three to six times a day usually provide welcome relief. This medication contains aspirin, phenacetin, caffeine and a barbiturate derivative. Concomitant tranquilizers are indicated. Mephrobamate is the drug of choice because it quiets the tension and anxiety as well as acting as a muscle relaxant. Treatment is necessary until the symptoms disappear an dthis may extend for months or years.

Before long term therapy is begun, organic lesions should be excluded by neurological study. The physician should re-examine the patient repeatedly because lesions may become evident on later examination when the findings on initial examination were normal.

Histamine Headache, Cluster Headache, Horton's Headache

Because of the high intensity of pain, and its periodicity of occurrence, it is probably a variant of the migraine syndrome. There are features about them which are not usual in migraine. There does not seem to be a familial tendency, and the headaches are more common at night, rather than day. The headaches often occur with clocklike regularity. The development of the high intensity of pain is more rapid and vasomotor symptoms such as occular tearing, nasal stuffiness, and discharge are more frequent. The pain is unilateral, retro-orbital and sometimes extends down into the face. The patient usually has paroxysms of pain occurring daily and lasting for several weeks or months. During the interim the patient is symptom free. Many of the patients will respond to progressively larger injections of histamine. The rationale is that they have a sensitivity to histamine, to which they can be desensitized. The use of Sansert (Sandoz) reportedly is of benefit. Histamine headaches respond less well to ergot preparations than migraine, although some authors think that daily doses of ergotamine tartrate will terminate the headaches. Furthermore, histamine headaches can be precipitated by injetcions of histamine, whereas migraine is not usually so produced.

If histamine headaches are caused by sensitivity to histamine, fairly uniform results should be produced by giving antihistaminics. Although some authors have reported good results, their use has been generally somewhat disappointing. It may be that relief coincides with a natural remission of the disease. Furthermore, it should be remembered that antihistamines act like tranquilizers and local anesthetics which may explain some of the results.

Infectious Processes

These may occur either in the nasal sinuses or ears, usually produce localized and severe pain and are caused by irritation of the adjacent sensitive dura mater or by the mechanism of referred pain. Appropriate drainage and treatment of th einfection causes a prompt cessation of headache .Such infections are often implicated even when the diagnosis is equivocal. The diagnoses should be verified by clinicall yor radiologically demonstrable infection.

Lumbar Puncture Headache

Severe headaches sometimes are produced by removal of spinal fluid, whether the removal was for diagnostic purposes or for the induction of spinal anesthesia. The spinal fluid leaks out into the extradural space at the site of puncture, producing intracranial hypotension. These headaches disappear when the patient is recumbent and recur when he assumes the upright position. These pains are usually quite severe and localized to the back of the neck with occasional radiation to the frontal and temporal regions. The explanation for this is that the normal cushion of spinal fluid is removed and allows the brain to exert traction by gravity on the pain sensitive structures within the cranium. The treatment consists of keeping the patient recumbent until the dural leak seals off and the lost spinal fluid regenerates. The replacement of spinal fluid can be accelerated by increasing the total fluid intake.

Acute Subdural Hematoma

An acute collection of blood in the subdural space, such as the first five or seven days after trauma, usually produces severe headache unless the patient is unconscious because of cerebral contusion or compression. Stupor or unresponsiveness is a very frequent finding in acute subdural hematoma. Diagnosis is made by diagnostic trepanation, and/or air studies and arteriography. The treatment consists of drainage. The accompanying cerebral edema should be treated by boney decompression and use of dehydrating agents such as Urevert.

Chronic Subdural Hematoma

This condition develops more slowly after head trauma, often originally thought to be minor. The collection of blood in the subdural space is augmented by the draining of other fluid into the subdural space, probably by osmosis. Encapsulation of the blood clot begins in the second week after the initial trauma and acts as a semipermeable membrane for transudation of fluid. Headache is a common symptom and is generalized and of high intensity. The pain becomes progressively severe and is accompanied by mental confusion and occasionally hemiplegic and speech disorders. The usual course of the disease is progressive for six to eight weeks if not diagnosed and drained. Very rarely the expansion may stop and the clot calcify. These patients may be misdiagnosed as being neurotic or psychotic and end up in a psychiatric hospital. The history of trauma may not be elicited and the condition should be suspected in any one having progressively severe headaches and mental deterioration even in the absence of trauma. Surgical drainage usually produces satisfactory results and the prognosis is good unless there has been irreversible drain damage.

The spinal fluid in subdural hematoma is usully xanthochromic with elevation of protein. The presence of cerebrospinal fluid under normal or subnormal pressure does not rule out subdural hematoma. Lumbar puncture without surgical drainage is fraught with risk of precipitation of a cerebellar or tentorial pressure cone with death occurring within minutes or hours. The diagnosis of subdural hematoma without resort to a surgical procedure has recently been facilitated by measurement of radioactive uptake by suitable apparatus after administration of an isotope. This procedure is innocuous and a high percentage of positive results indicate that this method is quite accurate.

Subarachnoid Hemorrhage

This type of headache almost always comes on suddenly with severe pain in the back of the head followed by generalized pain in the head. The patient may become confused or unconscious if the hemorrhage is severe. Diagnosis is made by finding a stiff neck and positive Kernig's Sign. Photophobia is common. Lumbar puncture reveals bloody spinal fluid. Subarachnoid hemorrhage is a serious condition and may result in death It is usually caused by a ruptured aneurysm of the Circle of Willis or a rupture of an intracranial blood vessel secondary to hypertension or arteriosclerosis. The patient usually requires contrast angiography to determine if a surgical lesion is present. If one is found, surgery should be considered; however, if the study is normal, treatment consists of bed rest with whatever analgesics are necessary for four to six weeks.

Meningitis

This condition produces a high intensity headache similar to subarachnoid hemorrhage. Diagnostic spinal puncture is indicated to determine the type of infecting organism and its sensitivity to appropriate antibiotics or sulfonamides. Pyogenic meningitis has a very rapidly fulminating course accompanied by high fever, unconsciousness and sometives convulsive seizures. Infections

due to tuberculosis or fungi proceed at a more leisurely rate, even though the eventual mortality and morbidity are often high. Viral meningitis causes severe headache. The diagnosis is made by lumbar puncture and appropriate viral studies.

Brain Tumors

There is a considerable variation in the type and location of pain due to brain tumors. The usual type of headache is of a bursting quality and generalized in distribution. In the early stages the pain may be mild and localized to one region of the head. The slower growing tumors may be relatively asymptomatic until sufficient size has been reached to cause increase in intracranial pressure or traction on pain sensitive structures. The pain of brain tumors, especially those in the posterior fossa, is usually worse on awakening, due to hydrostatic changes secondary to assuming the upright position. Frontal lobe tumors, even of large size, may never cause headache.

The absence of papilloedema does not rule out a brain tumor, nor does a normal spinal fluid pressure. The diagnosis of a brain tumor is made from the history of a progressive intracranial lesion verified by radiological study which includes x-rays of the skull, pneumoencephalography and/or arteriography. Electroencephalography and radioactive uptake studies are also of value. Which of the studies and the order in which they are done is best left to the judgment of the neurosurgeon in charge. The development of a brain tumor can be very subtle and unless suspected may not be diagnosed until the development of unequivocal signs such as papilloedema, vomiting, convulsions, ataxia, speech disturbance, paralysis or abnormal behavior. Appropriate surgical exposure and attempt to determine operability and histological verification is indicated.

Occipital Neuralgia

This is an extremely painful disorder characterized by sharp, shooting pains in the back of the neck radiating into the vertex of the head corresponding to the distribution of the appropriate nerves. On examination the nerves are painful to palpation, and on deep pressure the characteristic radiation can be produced. In most patients the cause is unknown; a small percentage of patients give a history of local trauma or infection. Occasionally the condition is caused by impingement on the second and third cervical nerves in the intervertebral foramina.

The pain can almost always be relieved temporarily by injection of a local anesthetic into the respective nerves. The pain is sometimes caused by or aggravated by muscle spasm of the neck. The treatment consists of repeated injections of the local anesthetic into the involved nerves. The use of various types of muscle relaxants sometimes gives benefit and is justified.

If the pain continues unrelieved and the patient is emotionally stable, avulsion of the nerves in the scalp and upper cervical muscles is justified. Occasionally laminectomy and intradural rhizotomy of the posterior branches of the second and third cervical nerves is necessary. The latter procedure is much more formidable and carries the usual risks of intraspinal surgery. Permanent loss of sensation over the back of the head and upper part of the neck is a consistent sequelae and must be accepted by the patient. When the above mentioned criteria are met, the the result is usually gratifying.

Post-concussion Headache

Many patients develop headaches following cerebral concussion. It has been shown experimentally that the acceleration of the head during concussion causes the brain to fall away from the skull for one to three centimeters. It is hypothecated that traction on the pain sensitive structures within the head makes them hypersensitive for several weeks. The pain is often of a sticking type, either localized or generalized, and associated with postural giddiness or vertigo. This syndrome occurs more often in mild, rather than severe injuries. The treatment is symptomatic. If the symptoms last longer than six weeks and a subdural hematoma can be excluded, psychogenic factors should be strongly suspected. Litigation, compensation or desire to escape from unpleasant life situations are the usual factors which prolong the complaints and disability. Psychotherapy is often indicated to give the patient insight into the mechanism of his symptoms and readjustment of his attitude. Settlement of litigation does not always cause cessation of the complaints. Early return to work and re-integration of the patient into his environment are indicated in attempt to prevent prolonged invalidism and its attendant frustration and discouragement.

Atypical Facial Neuralgia

This is a poorly understood condition which produces chronic, boring pain deep in the face. The headache does not respond to simple analgesics. Unlike trigeminal neuralgia, it is not subject to exacerbations and remissions, nor is a trigger point elicited. Occasionally patients will be found to have a tumor of the Gasserian ganglion or base of the skull. Injections and surgery of the trigeminal nerve are contraindicated and doomed to failure. Procaine injections into the occipital and auricular nerves have been reported of benefit by some authors; however, most surgeons have had little success with this method, which has little physiological basis. The use of electric shock treatments has been reported to be of some benefit if the patient is severely depressed and suicidal. Actually this form of therapy does not treat the disease, but merely the reaction of the patient to the disease.

The initial flush of enthusiasm for intracranial section of the greater superficial petrosal nerve has faded into a pallid skepticism for its rationale and long term results.

Sphenopalatine Gangion Neuralgia

This condition is sometimes called Sluder's neuralgia. This painful condition involves the face below the orbit, commonly called a "lower half headache." Some authors are enthusiastic about cocainization and alcohol injection of the sphenopalatine ganglion in the nasal cavity. Others have had little success with this form of treatment, and it still remains a therapeutic enigma. Alcohol injections and surgery of the trigeminal nerve are of no value and should be avoided. It is likely that this disease is a variant of atypical facial neuralgia.

Hyptertension

The headache of essential hypertension is usually suboccipital with frontal radiation. They can be quite severe and disabling. Furthermore, they are usually present on awakening when the blood pressure is the lowest. The explanation for this is that vasodilation occurs during the night, and when vasoconstriction and elevation of the blood pressure occurs during the daytime the headache improves. Actually some of the headache may be related to muscle tension. The headaches of hypertensive encephalopathy are more generalized and are caused by cerebral edema secondary to increased permeability of the small blood vessels of the brain. There may be retinal changes, convulsions, paralysis or aphasia, as well as involvment of the heart and kidneys. This disease is in reality a local manifestation of a systemic disease. The treatment is essentially a medical one with the use of medications to lower the blood pressure. The use of cerebral dehydrating agents is indicated as tolerated by the patient.

Trigeminal Neuralgia (Tic douloureux)

This condition is the easiest type of head pain to diagnose. The patient describes a sudden onset of severe, agonizing, lancinating pain in one of the branches of the trigeminal nerve with or without spread to the other divisions. The patient can localize a trigger point which can be activated by the mildest of cutaneous stimuli. The condition is subject to exacerbations and remissions. The nerological examination is normal except for the presence of the trigger point. The elderly are most often afflicted. If the condition occurs in younger people, an underlying multiple sclerosis should be suspected and searched for. The condition is a lifelong disability unless the reflex sensory arc can be abolished. Medical treatment is empirical and consists of the administration of dilantin sodium or vitamin B 12. This form of treatment is by no means a cure and only tides the patient over the acute exacerbation.

Alcohol injection of the appropriate nerve produces loss of sensation and relief of pain for months or years. When the nerve regenerates inevitable recurrence of pain sets in. The most lasting relief is obtained by intracranial section of the trigeminal nerve behind the Gasserian ganglion. The risk of surgery, even in the elderly, is small The disadvantages of this procedure are numbness of the face and corneal analgesia if the ophthalmic fibers are cut. Recently "decompression" of the trigeminal ganglion has been offered as a substitute for root section because it leaves sensation in the face relatively intact. Actually there is no valid evidence that the surgeon "decompresses" anything, and it is likely that the results are caused by mild trauma to the ganglion with resultant abolishment of the reflex sensory arc. Recurrence of pain following this operation varies from 30-50%, whereas permanent relief by root section approaches 100%.

Surgical section of the descending tract of the

trigeminal nerve nucleus in the medulla oblongata has been done because of the anatomical dissociation of the nuclei for pain and touch. It was originally thought that pain could be relieved without abolishment of the sensation of touch. Because of the return of pain in a certain percentage of patients and the frequent production of cerebellar ataxia, this procedure is seldom used. In patients having intractable pain caused by malignancy in the face and jaw this procedure is occasionally combined with section of the upper cervical and glossopharyngeal nerves, which can be easily approached by this method.

Summary and Conclusions

1. A brief review of the various types of headache has been given.
2. Treatment should be tailored to the individual patient. An accurate diagnosis is essential, because treatment is usually a long term affair.
3. The physician should treat the whole patient in his life situation, remembering that the commonest cause of headache is life itself. Long term relief comes not from a pill but from a way of life.



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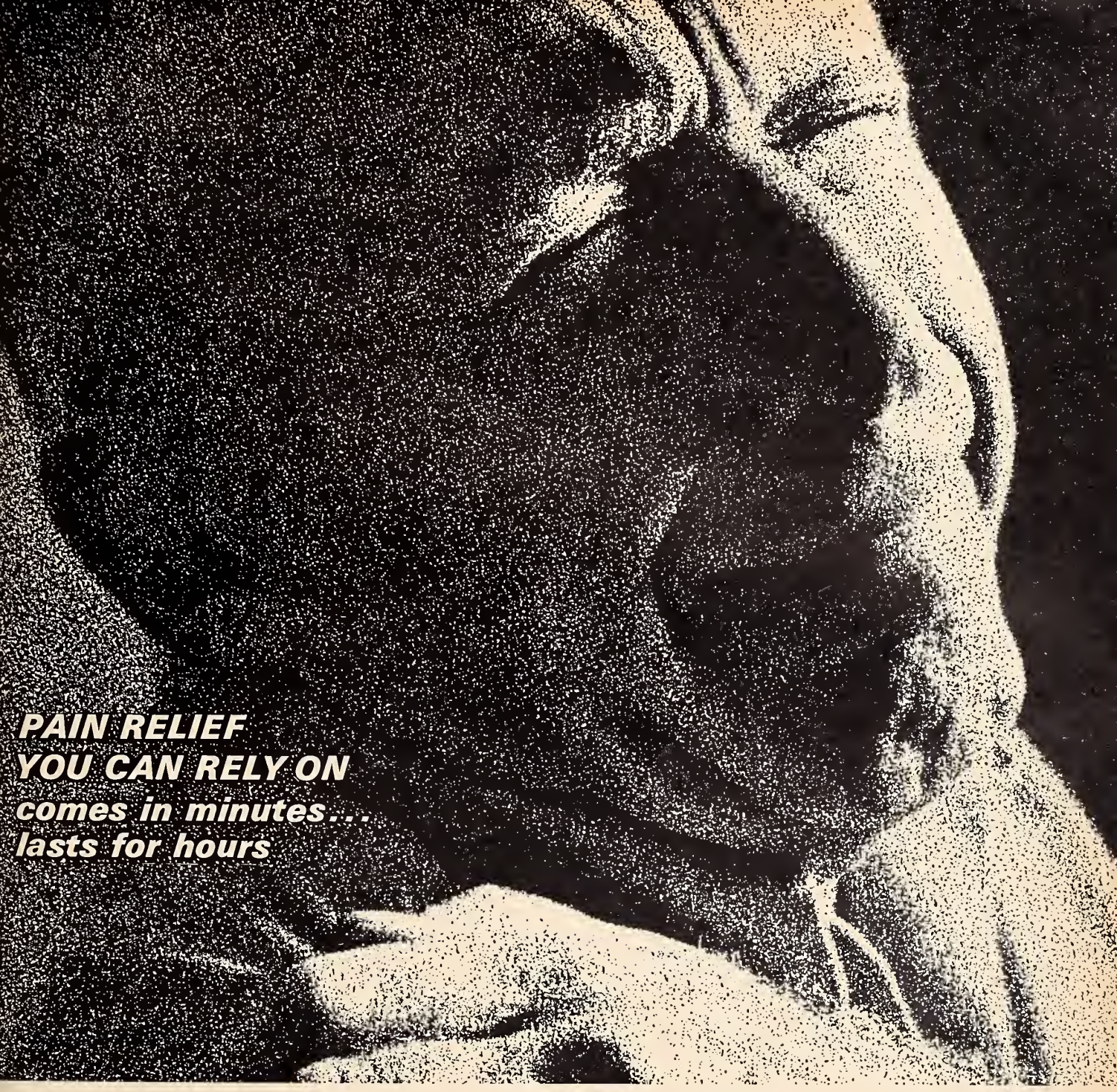
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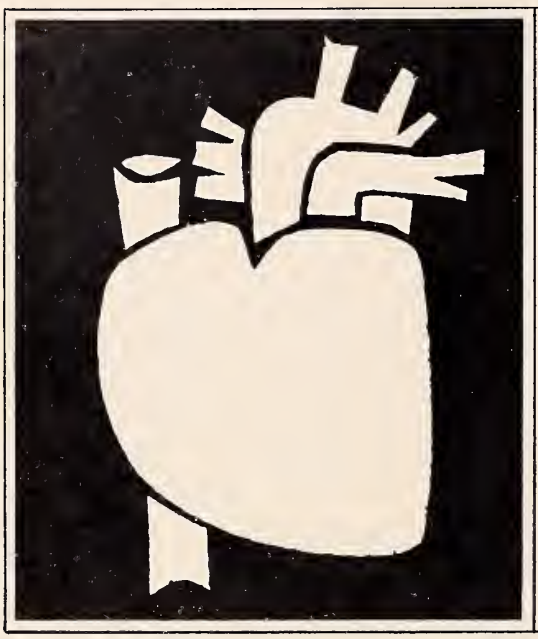
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Of Pumpkins and Things



Dr. Brewer

I HAVE been in a peripatetic mood the past month, what with trips to New York, Washington, D. C., and Chicago, and with the Arizona Academy session at the Grand Canyon looming high on the horizon. My thoughts have been on a whirligig with the constitution of Arizona and Thanksgiving and the National election and voluntary health organizations vying for primacy in my thought from day to day, vying to exclude from my mind the life and death struggles that every physician is responsible for, and privileged to wrestle with, in his every day life.

But, in the midst of all this consuming confusion, my number four child succeeded in raising to maturity a pumpkin — in the azalea bed in front of our home! Not just a pumpkin either, three or four healthy potato plants and some carrots and radishes too. He is very proud of his green thumb and perhaps just a little thrilled at wondrous nature. And mother and dad are covertly pleased too.

This same little boy traveled with us behind the Iron Curtain, where we saw garden plots not much bigger than his. These were the major evidence of free enterprise behind that barrier in 1962. Unkle K. is working toward more in this direction now in 1964, which is a tacit admission of the basic fact of man's restless soul and his need for striving and sense of accomplishment by his own hands and ingenuity and sweat. This we yet have in the United States. Billy can plant his pumpkin and sell it or plant it for the pure joy of seeing something grow. We have no *Kolchoz*, collective farm. For this I am thankful.

All of our national legislators were considerate and helpful when I visited them in Washington, D. C. during the Senate debate on the Long and Gore amendments to the Social Security Bill. Some unobtrusively disagreed as I tried my best to present the opinions of medicine. Some agreed.

But this is not important. That I could go to them in person and pour out my strongest feelings about an issue, any issue, and could come home and publicly discuss them and their actions and write as freely as I wish without fear of any kind; this is important. This is critical. For this I am thankful today.

While in Washington, I slipped away to Fredericksburg, Virginia. There I saw the desk upon which James Monroe wrote his famous doctrine. I stood in the same room where stood Washington and Jefferson and Patrick Henry — and I went back and hesitatingly touched the bed on which Lincoln died. I saw the eternal flame on Kennedy's grave, with his two babies beside him. I walked over a battlefield and felt compassion in my soul for the brothers who killed brothers for a principle bigger than life itself. I stood mute before the grave of the unknowns in Arlington, who gave their all for another principle — and for me. I saw the originals of our Declaration of Independence, our Constitution, our Bill of Rights, our Emancipation Proclamation — our heritage. For these I am deeply thankful today.

I visited museums and laboratories, where I saw things miraculous to one of my vintage, now prosaic and commonplace, supplanted by still greater miracles as science has delved even deeper, even into life itself. And I felt awed at our most modern conquest of disease — and was pleased with my place in life as a physician. For this I was thankful.

The trip to Chicago was to participate in a national conference on voluntary health agencies. It was a good conference, stimulating, thought provoking, extremely frank in its critiques. There was much for sober thought and one day here we may be able to consider it more in deatil. Two things did seem most important to me. One was that duplication in voluntary health agencies was not necessarily bad. This concept was quite foreign to my own thinking, having gone through a two year study of such problems in which duplication became almost

prima-facie evidence of inefficient use of personnel, including the physician's time, and the donors' dollars. It was suggested contrariwise that in some few cases, the competition for improvement actually was keener and with better end-results when two organizations had some over-lap in their purview.

This actually represents a facet of the second important concept, viz. voluntarism in the health agency field. Voluntarism, narrowly and broadly considered pervaded the entire conference and I am convinced that voluntarism and free enterprize are directly proportionate in our United States. I can even go one step further. I believe the degree of greatness among nations today is proportionate to the degree of voluntarism in those nations. We Americans yet have the greatest proportion. For this I am most thankful.

My family travelled with me most of the time and we enjoyed the things we saw and did together. We could not visit Plymouth Rock, but even so, we are appropriately mindful at this time of our Pilgrim forbears and their flight from religious bigotry and of their Thanksgiving. But we could visit a great cathedral and a great synagogue, monuments to our one God.

For these things, my God, my family, my country, and my profession I give thanks. So much more befalls our lot today, than our Pilgrim fathers. The sacred heritage invested in our hands must be preserved for our progeny. Let us be thankful for this privilege and mindful of the trust.

We will have pumpkin pie this year from our own pumpkin! I am truly thankful.

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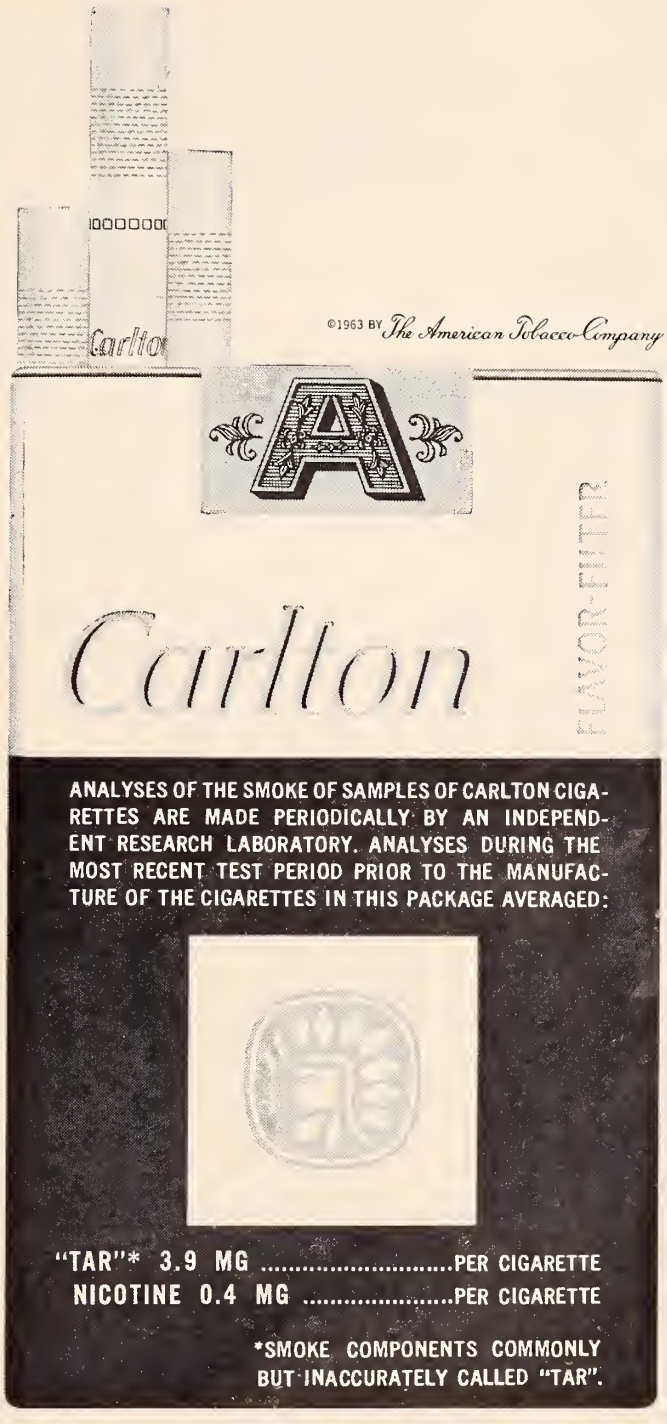
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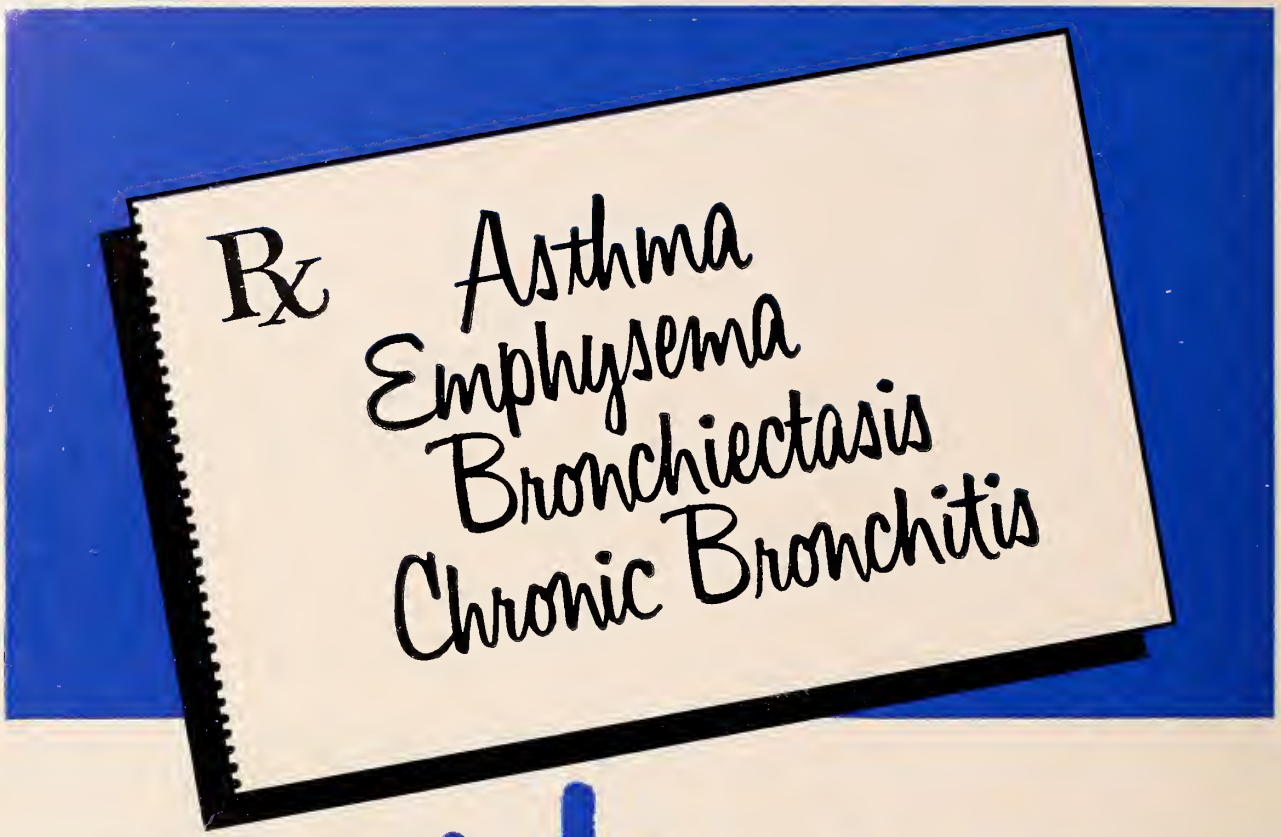
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Eye To Eye Diplomacy

AT the recent World Congress on the Cornea in Washington, D. C., the director, Dr. John Harry King, pointed out some of the areas in which American ophthalmology has acted as a potent diplomatic force.

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International differences and the advance of communism have not been solved by 110 billion dollars in foreign aid. Perhaps more programs in other medical specialties can achieve what the American taxpayers have not.

As Dr. King has pointed out, ophthalmologists involved in these activities are providing a powerful humanitarian service and are practicing "American Diplomacy, Eye to Eye."

Robert F. Lorenzen, M.D.
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Disaster Medical Care In Civilian Hospitals

Part IV



Carl W. Waldon, M.D., D.D.S., F.A.C.S.

FRACTURES might well constitute the most numerous type of injury and many casualties will have had first aid splints applied previous to their arrival at the hospital. Closed fractures (formerly misnamed simple) should be stabilized to prevent additional injury to muscles, vessels and nerves and thereby prevent or reduce additional shock. TRACTION splinting may be indicated if facilities are available. They may be sorted as *delayed* as it has been demonstrated that excellent results may be obtained with definitive reduction done several days later.

Open fractures (formerly misnamed compound) are serious and subject to contamination by foreign bodies and infection. They are surgical emergencies and sorted as *immediate* requiring the cleansing of wounds, antibiotics and immobilization by splinting until indicated surgery can be performed.

Most closed fractures, and some open, may be transferred to a nearby holding building to await definitive care when conditions of great disaster stress in the hospital have improved. The overall adequacy of facilities and personnel and the casualty load will determine when such definitive treatment may be undertaken.

Fractures of the facial bones, mandible, maxilla and malarzygomatic compound, may embarrass respiration due to displacement and accumulation of saliva and blood in the pharynx and laryngeal area. Trachestomy may be necessary. Some degree of stabilization may be secured by supportive bandaging and, if available, a dentist can, by arch bar wiring, secure fractured segments of either jaw. Delayed definitive care is usually satisfactory in fractures of the jaws.

Fractures of the skull, spine, Thorax and pelvis are classified as immediate when sorted if facilities and personnel are available, otherwise same may be held as *expectant* or *delayed.*

INFORMATION CENTER. Relatives and friends of victims of a disaster, the police, the press and others have the right to secure information regarding the condition of casualties. This necessitates setting up a well organized center for quick, accurate and courteous dissemination of such information.

The Information Center should be located far away from the admitting and sorting area and the emergency department in order to prevent any interference with the treatment of the patients. A nearby building in a hospital group, or a building adjacent to the hospital, would be excellent for this purpose. It should be well marked and have close communications with the administrative staff of the hospital who, in

turn, would receive accurate data from the treatment areas and wards. Red Cross workers and others with some disaster experience, if available, should staff the Information Center.

It is important that this facility bet set up in the predisaster plan of the hospital and activaetd at the time any disaster exercise is undertaken.

Action must be taken to make sure that all hospital personnel, professions, auxiliary personnel and helpers can be located in time of need. Telephone communication will be the usual method employed, but to avoid confusion and overlapping of effort, a pyramid system of telephoning will divide the responsibility of reaching all persons with duty assignments. Included in this activity would be the notification of members of auxiliary police and fire departments, American Legion, V.F.W., and other organizations included in the over-all community and hospital disaster plans.

The American National Red Cross has organized ehapters in many counties. These stand ready to function and provide immediate emergency services in sudden catastrophes, in accordance with the American Red Cross DISASTER ACTION chapter guide.

Local authorities — police, fire, hospitals, Civil Defense and others — are to be informed that American Red Cross services are available and information maintained by constant liaison. Such services include canteen feeding at the disaster site for survivors and all authorized personnel and, when requested, at the hospitals for patients, relatives and extra personnel.

Medical and nursing services include First Aid at the scene, and recruitment of additional nurses for hospitals when needed. An inquiry and information service is provided which may well be located in the Information Center of the hospital. A wide variety of additional services are available including clothing, comfort and work items for casualties and workers and assistance in making travel arrangements, shelter, temporary care of children and the aged and ill, communications, etc.

The responsibilities of the Red Cross and that of governmental agencies in situations when lives are threatened and when disaster strikes are shown in chart form (1959) and in American Red Cross reports and memoranda.

This is the concluding article of a four part series. Parts 1, 2 and 3 appeared in August, September and October 1964, respectively.



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THE ULCER LIFE

In this "pop art" assemblage, artist Bob Sullivan depicts "the ulcer life" as man in-a-box. The wall of nails closing in might well symbolize the torturous demands of a rigid, conformist society. As for the man, his disembodied psyche moves relentlessly onward with the blank, fixed stare of a man who has lost control of his own destiny. Small wonder that his gastric mechanism rebels.

NUMBER 1 IN A SERIES

for the ulcer life:
a new strength of glycopyrrolate

ROBINUL® FORTE
2 mg. per tablet

ROBINUL®-PH FORTE
glycopyrrolate 2 mg. phenobarbital 16.2 mg. (warning: may be habit forming)

When glycopyrrolate was first introduced, clinicians were immediately impressed by the remarkable ability of this compound to exert a more specific pharmacologic action on the gastrointestinal tract than on other organ systems. For example, they often found that in difficult patients the dosage could easily be adjusted upwards to achieve the desired suppression of both hypertonicity and secretion . . . without paying the penalty of side effects intolerable to the patient. Thus, it is no surprise that many clinicians suggested that a double-strength 2 mg. tablet of glycopyrrolate would be both practical and useful. For those patients ordinarily unresponsive to anticholinergics or for those exhibiting the more prominent symptoms, the new Forte dosage forms are a worthwhile addition to your ulcer armamentarium.

BRIEF SUMMARY

INDICATIONS: In addition to its primary indications for duodenal and gastric ulcer, glycopyrrolate is indicated for other G-I conditions which may benefit from anticholinergic therapy. Robinul-PH Forte (glycopyrrolate 2 mg. with phenobarbital) is indicated when these situations are complicated by mild anxiety and tension.

CONTRAINDICATIONS: Glaucoma, urinary bladder neck obstruction, pyloric obstruction, stenosis with significant gastric retention, prostatic hypertrophy, duodenal obstruction, cardiospasm (megaesophagus), and achalasia of the esophagus, and in the case of Robinul-PH Forte, sensitivity to phenobarbital.

PRECAUTIONS: Administer with caution in the presence of incipient glaucoma.

SIDE EFFECTS: Dryness of mouth, blurred vision, urinary difficulties, and constipation are rarely troublesome and may generally be controlled by reduction of dosage. Other side effects associated with the use of anticholinergic drugs include tachycardia, palpitation, dilatation of the pupil, increased ocular tension, weakness, nausea, vomiting, headache, dizziness, drowsiness, and rash.

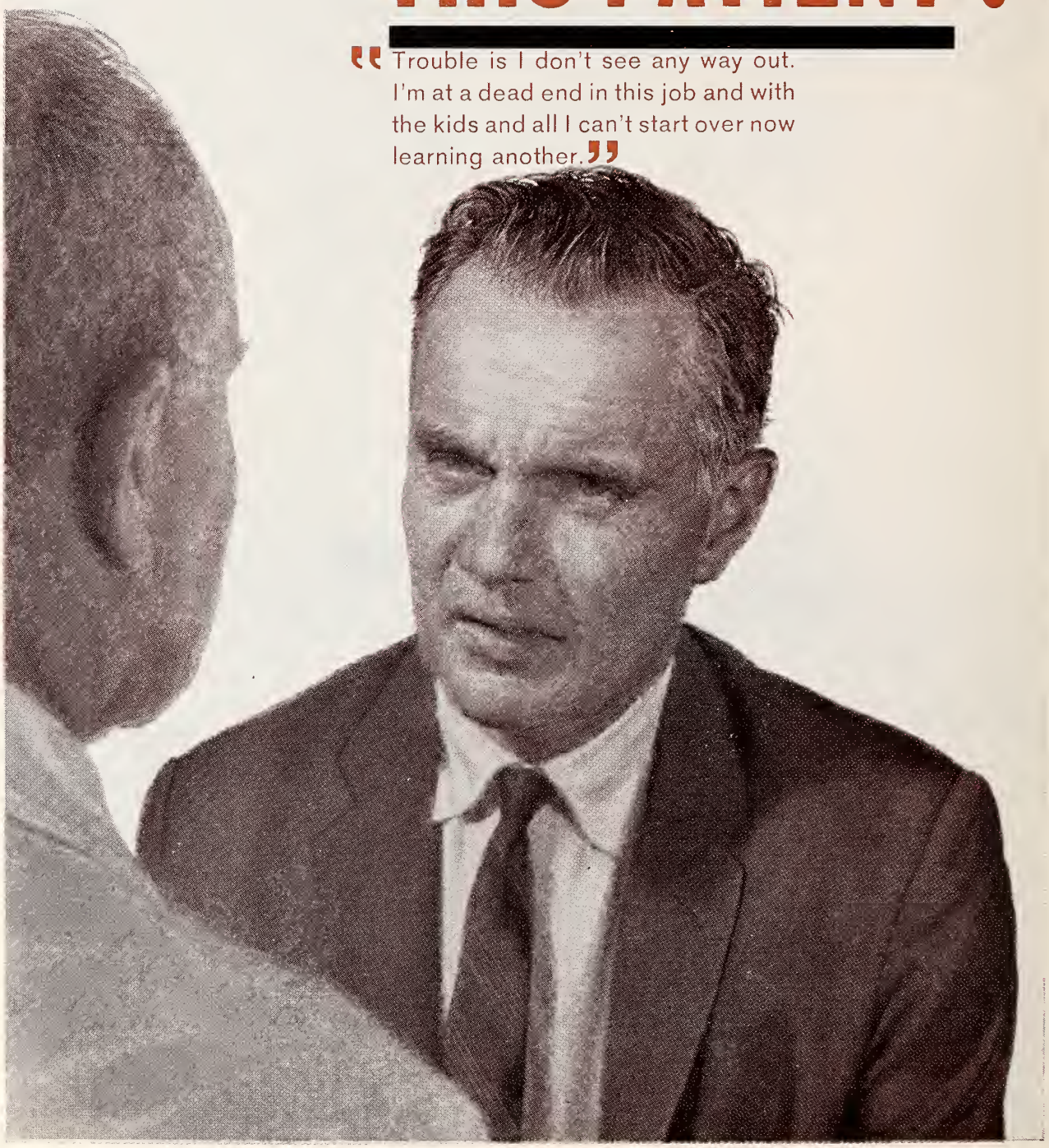
DOSAGE: Should be adjusted according to individual patient response. Average and maximum recommended dose is 1 tablet three times a day: in the a.m., early p.m., and at bedtime.

See product literature for full prescribing information.

A. H. ROBINS COMPANY, INC., RICHMOND, VIRGINIA | PHARMACEUTICALS | RESEARCH Robins

RECOGNIZE THIS PATIENT?

"Trouble is I don't see any way out. I'm at a dead end in this job and with the kids and all I can't start over now learning another."



Indications: Depression, both acute (reactive) and chronic, especially when the depression is accompanied by anxiety, insomnia, and related symptoms. **Contraindications:** Benactyzine hydrochloride is contraindicated in glaucoma. Previous allergic or idiosyncratic reactions to meprobamate contraindicate subsequent use. **Precautions:** Should administration of meprobamate cause drowsiness or visual disturbances, the dose should be reduced. Operation of motor vehicles or machinery or other activity requiring alertness should be avoided if these symptoms are present. Effects of excessive alcohol may possibly be increased by meprobamate. Prescribe cautiously and in small quantities to patients with suicidal tendencies. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction; withdraw gradually after prolonged use at high dosage. Abrupt withdrawal may precipitate recurrence of pre-existing symptoms, or withdrawal reactions including, rarely, epileptiform seizures. Grand mal seizures may be precipitated in persons suffering from both grand and petit mal **Side effects:** Side effects associated with 'Deprol' have consisted primarily of drowsiness and occasional dizziness, and infrequent skin rash and nausea. *Benactyzine hydrochloride* – Benactyzine hydrochloride, particularly in high dosage, may produce dizziness, thought-blocking, a sense of depersonalization, and a subjective feeling of muscle relaxation, as well as anticholinergic effects such as blurred vision, dryness of mouth, or failure of visual accommodation. Other reported side effects have included gastric distress, allergic response, ataxia, and euphoria.

When you recognize depression and anxiety traceable to an emotionally charged situation with no somatic disorder

—*start the patient on 'Deprol'*

Typical situations in which 'Deprol' is indicated:

marital or other family problems ■ death of a loved one ■ financial worries ■ fear of cancer, heart disease or other life-threatening illness ■ pre- and post-operative apprehensions ■ retirement problems, and many other stressful situations which cause the patient to feel a sense of loss, guilt or unworthiness

Advantages of 'Deprol'

1. By relieving both depression and anxiety, 'Deprol' lifts the mood of the depressed patient without the agitation and "jitters" that often accompany "energizer" therapy alone.
2. 'Deprol' restores normal sleep, relaxes physical tensions, and improves appetite.
3. 'Deprol' acts rapidly—patients often respond within a week or two.
4. 'Deprol' is relatively nontoxic and free of side effects.
5. When depression and anxiety accompany physical illness, 'Deprol' is compatible with drugs used to treat these organic conditions.

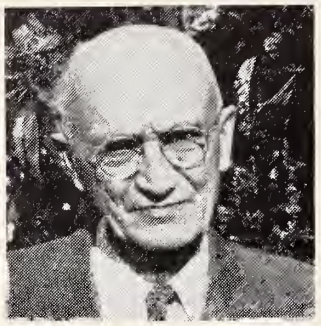
Deprol®

meprobamate 400 mg. + benactyzine hydrochloride 1 mg.

WALLACE LABORATORIES / *Cranbury, N. J.*

CO-3561

Meprobamate— Drowsiness may occur and, rarely, ataxia, usually controlled by decreasing the dose. Allergic or idiosyncratic reactions are rare, generally developing after one to four doses of the drug. Mild reactions are characterized by an urticarial or erythematous, maculopapular rash. Acute nonthrombocytopenic purpura with peripheral edema and fever, transient leukopenia, and a single case of fatal bullous dermatitis after administration of meprobamate and prednisolone have been reported. More severe and very rare cases of hypersensitivity may produce fever, chills, fainting spells, angioneurotic edema, bronchial spasm, hypotensive crises (1 fatal case), anuria, stomatitis, proctitis, and anaphylaxis. Treatment should be symptomatic and the drug not reinstituted. Isolated cases of agranulocytosis and thrombocytopenic purpura, and a single fatal instance of aplastic anemia have been reported, but only when other drugs known to elicit these conditions were given concomitantly. Fast EEG activity has been reported, usually after excessive meprobamate dosage. Massive overdosage may produce lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse. **Dosage:** Usual starting dose, one tablet three or four times daily. May be increased gradually to six tablets daily and reduced gradually to maintenance levels upon establishment of relief. Doses above six tablets daily are not recommended even though higher doses have been used by some clinicians to control depression and in chronic psychotic patients. **Supplied:** Light-pink, scored tablets, each containing meprobamate 400 mg. and benactyzine hydrochloride 1 mg. *Before prescribing, consult package circular.*



HARRY C. BIGGLESTONE, M.D.
1892-1964

Harry C. Bigglestone, former Tucson physician expired in San Diego, California on July 10, 1964. Dr. Bigglestone was born October 9, 1892 in Marathon, Iowa. He attended Morningside College, Sioux City, Iowa where he received an A.B. degree. He also studied at the University of Chicago. He received his M.D. degree at the University of Illinois in 1924. His internship was served at St. Elizabeth's Hospital in Chicago from 1924 to 1925. He came to Arizona for his health in 1940 and after he was rehabilitated he served one year at New York Postgraduate Center specializing in Dermatology, particularly skin cancer. He came to Tucson, Arizona to practice in 1943, became a member of the Pima County Medical Society and the Arizona Medical Association in 1944. He retained his active membership through 1947, at which time he was stricken with a massive myocardial infarction and his practice was terminated. He was an affiliate member from 1948 to 1953 and an associate member from 1954 to 1964. Other organizations of which he was a member were Southwest Dermatological Association and Alpha Omega Alpha.

Following his myocardial infarction, Dr. Bigglestone suffered greatly from subendocardial anoxia with associated angina pectoris. He never complained and was always cheerful; he accepted his lot and while he could not return to medicine, he remained intensely interested in all phases of medicine and was an avid reader of medical publications. During most of the time after he became disabled, he lived in San Diego, California.

Harry Bigglestone was a gentile, kind practitioner of medicine. Prior to coming to Tucson for his health, he had practiced in Iowa. He was well loved by all his patients and by all his confreres.

Our sympathy goes to his survivors: his wife, Ruth; his sons Harry C. and William F. and a daughter, Mrs. Richard Lewis.

Harold W. Kohl, Sr., M.D.



CHARLES ROSCOE FARABEE, M.D.
1907-1964

Doctor Farabee was in the practice of medicine in Tucson, Arizona from 1955 to the date of his death. He was born in Lexington, North Carolina, attended the University of North Carolina and the Medical College of the State of North Carolina. He received his M.D. degree in 1934. His internship was served at Watts Hospital and residencies at Pima County (Arizona) General Hospital and at Tucson Medical Center. He served an Assistantship at the Miller Clinic, Hobart, Indiana from 1938 to 1940.

Dr. Farabee was a member of the American Medical Association, the Arizona Medical Association, Inc. and the Pima County Medical Society, of which he was a member since 1958.

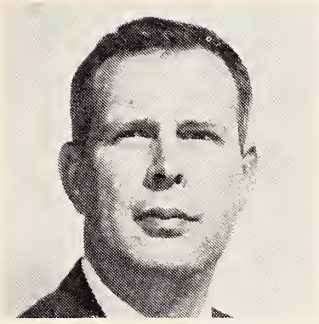
In his medical work in Tucson he practiced the highest type of medicine such as to bring honor to our profession. He will be sorely missed by his confreres and by his patients.

He was a member of the Masonic Lodge, the Scottish Rites, the Shriners and the Elks.

Doctor Farabee is survived by his widow, Mrs. Maxine E. Warner Farabee; two sons, Joseph E. and Charles R. Jr.; one daughter Nancy D., and a granddaughter, Jill Elizabeth, aged 2 years.

Our sympathy is extended to Doctor Farabee's entire family.

Harold W. Kohl, Sr., M.D.



ROBERT E. HANCOCK, M.D.

1921-1964

The sudden death of Bob Hancock was a shock to his many friends here in the Valley. He had started the practice of general surgery here in 1960 and was highly regarded by his colleagues and patients.

Dr. Hancock graduated from the University of Cincinnati Medical School in 1947 and interned at the University of Pittsburgh Hospital 1947-48.

For a time he did general practice in Piqua, Ohio; he returned to the Miami Valley Hospital, Dayton, Ohio and then began a residency in general surgery 1950 to 1951, and completed this at St. Elizabeth's Hospital, Youngstown, Ohio 1951 to 1954.

He returned to Piqua, Ohio and conducted a practice in general surgery until 1959 at which time he joined the staff of the Veterans Administration Facility at Whipple, Arizona, 1959-1960.

He was made a Diplomate of the American Board of General Surgery in 1958.

His fellow physicians, in paying tribute to Bob, stressed his integrity; his deep sincerity in every undertaking, and his rare and boundless faith and honesty and goodness of his fellow man.

Dr. Hancock is survived by his wife, Elvera, and two children, Marsha and Roberta.

John W. Kennedy, M.D.



ALDEN BERTRUC THOMPSON, M.D.

1899-1964

Dr. Alden Bertruc Thompson was born in Matagorda, Texas on September 29, 1899 and expired in Tucson on July 8, 1964. He attended Howard University and received his M.D. degree from that institution on June 11, 1926. He served his internship at Freedman's Hospital, Washington, D.C., from October 1, 1926 to October 11, 1927. His postgraduate studies included three sessions in Surgery at the Mayo Clinic in the years 1938, 1944 and 1947; one in Surgery at the Philadelphia General Hospital; one each in Surgery at Freedman's Hospital, Washington, D. C., Kansas City Municipal Hospital and Harlem Hospital. In addition he spent three summers in Pediatrics at Stanford University Medical School.

Dr. Thompson was a member of the Pima County Medical Society, the Arizona Medical Association, Inc., the American Medical Association, Trudeau Society, American Academy of General Practice and the American Thoracic Society.

Prior to coming to Tucson in 1927 he practiced in Washington, D. C. from October 21, 1926 to October 1, 1927.

During his 36 years of practice in Tucson he was embodied in the highest concepts of medical philosophy and ethics. Kindly, humble, inquisitive of the science of medicine, friendly and devoted to his patients and to his confreres, he always had a ready smile of greeting.

He was a 33rd Degree Mason and past Grand Master of his Grand Lodge and was an active member of Mt. Calvary Baptist Church. He was active in civic affairs and could always be depended upon for sound advice regarding proposed projects in his community.

Tucson has lost a respected member of its medical family. Surviving are his widow, Willie Mae White Thompson, and his 16 year old daughter, Evelyn.

Harold W. Kohl, Sr., M.D.



PETER PAUL ZINN, M.D.
1892-1964

Peter Paul Zinn passed away on March 31, 1964, from a cerebral hemorrhage.

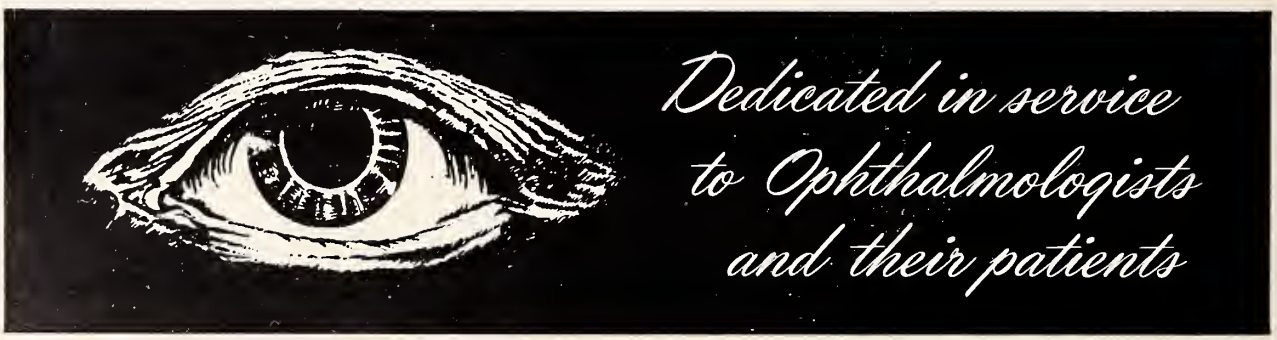
Dr. Zinn was born in Ogden, Utah, February 23, 1892. He attended Pacific Medical College in Los Angeles, California, graduating in June, 1915. He began his practice that year in Flagstaff, Arizona. Later he served on the staff of the Arizona State Hospital in Phoenix, Arizona, and in 1928 he went to Miami, Arizona, and practiced there until 1929. That year he returned to Los Angeles to study radiology. In June, 1934, he came to Bisbee, Arizona, and was employed by the Phelps Dodge Corporation as a radiologist in the Copper Queen Hospital. He kept that position until 1945, and on September 15th of that year he opened the Tombstone Medical Center which he headed until 1947. In that year he started private practice in Bisbee, Arizona, which he kept up until the day before his death.

Dr. Zinn was a life member of BPOE, Bisbee Lodge 671. He was a member of the County, State and American Medical Association; also served a term as President of the Cochise County Medical Society.

He is survived by his widow, Caroline C. Zinn, a daughter and a step-son.

Dr. Zinn was well known in this community and his passing will be felt by his friends, patients and colleagues.

Joseph Saba, M.D.



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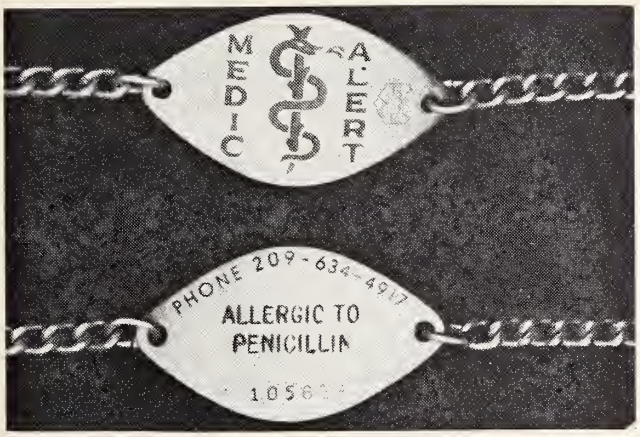
14 E. Monroe St. ALpine 8-8928
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4350 N. Central Ave. AMherst 6-8824
909 E. Brill 252-8904
218 E. Stetson Dr. (Scottsdale) WHitney 6-1711
Marcus J. Lawrence Clinic Cottonwood, Arizona
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KNOW THIS EMBLEM

More than 110,000 persons are now wearing the Medic Alert Emblem. Distributed by the Medic Alert Foundation International, it carries on one side the Staff of Aesculapius and the words "Medic Alert" in red, while on the reverse side is engraved the immediate medical problem such as "diabetes," "allergic to penicillin," "taking anti-coagulants," "wearing contact lenses," "neck breather," etc. Last year the Foundation voted to add the newly developed AMA symbol for emergency medical identification (see illustration) to the face of the Medic Alert Emblem. Dr. John Paul Lindsay, a member of the District Medical Society, is a member of the Foundation's National Medical Advisory Committee which made this recommendation.



The Medic Alert Foundation, a nonprofit organization, maintains a central file, accepting on a 24-hour basis collect calls from anywhere in the world and relaying information in the file pertaining to the wearer. Each emblem is registered and the serial number is engraved on the reverse side, as is the telephone number of the central file (209-634-4917). As percentage of each membership fee is placed in a special fund to help to perpetuate this service.

Sister organizations have been established in 6 other countries — Canada, New Zealand, Spain, The Netherlands, The Philippines, and Great Britain and the Republic of Ireland. The Medic Alert Emblem is registered in 16 other countries, and autonomous branches will be established in them, too.

Further information and membership application forms may be secured by addressing Medic Alert Foundation, Turlock, California 953280. Membership fee, with emblem (stainless steel), is $5.00; (stering silver) $7.50.

THIRTY-FIVE
YEARS
CURING DOCTORS
CARS

Loaners Always
Available

TONY COURY
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525 WEST MAIN
MESA, ARIZONA



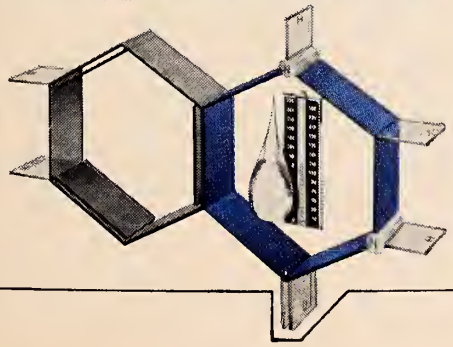
Just turned hypertensive

A 15 mm. Hg drop in diastolic pressure would also suit her very well

For suitably gradual, physiologic hypotensive treatment



HYDROMOX®
QUINETHAZONE·TABLETS
antihypertensive diuretic



HYDROMOX Quinethazone is excellent for use in early hypertension. Extremely well tolerated, the average reported reduction in diastolic pressure is 15 mm. Hg,[1,2] just right for patients with mild to moderate diastolic elevations. Systolic pressure lowered accordingly. A convenient, single daily dose of one to two 50 mg. tablets is usually sufficient.

INDICATED in hypertension with or without edema, and in all types of edema involving salt retention. May be helpful in some cases of lymphedema, idiopathic edema and edema due to venous obstruction.

SIDE EFFECTS: Skin rash (rare), gastrointestinal disturbances, weakness and dizziness, seldom so severe that drug should be stopped. Generally, the adverse effects sometimes associated with the thiazide diuretics are possible. Pre-existing electrolyte abnormalities may be aggravated.

CONTRAINDICATION: Anuria.

1. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. J. Amer. Geriat. Soc. 11:945 (Oct.) 1963.

2. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, California, Nov. 25-28, 1962.

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JESSE D. HAMMER, M.D.



Dr. Hamer when he started his thirty years of service in 1934.

We take this time and space to humbly do honor to a true man of service to medicine and humanity. Doctor Hamer, a graduate of Western Reserve University in 1926, joined the Arizona Medical Association in 1928 and has been active ever since. He joined the Board of Directors as a Delegate to A.M.A. in 1934 and has

J. D. HAMER, M.D.
15 East Monroe St. - Suite 910
PHOENIX 4, ARIZONA

Sept. 15, 1964

Board of Directors,
Arizona Medical Association, Inc.,
Scottsdale , Arizona.

Gentlemen:

Even tho the occasion created within me a bit of nostalgia that I would no longer serve with you on the Board of Directors of our Association; a service which extended back a period of thirty years continuously in one office or another; I am constrained and somewhat pleased at the thought that I can slow down a bit in the performance of duties with the State Medical Association as the years get shorter and shorter, and older age advances all too rapidly.

However, I do wish to extend to the President, other Officers, and members of the Board of Directors, my warm appreciation of the beautiful plaque presented last May to me, during the President's Dinner Dance, in recognition of this thirty years service to the Association. I trust that more years will be afforded in the future to serve you and the professional, in other capacities, and I pledge my best efforts in carrying out other duties in which you have placed me on a local state level.

My best wishes to all of you in your assigned tasks, whether professional or Association duties, so that the Arizona Medical Association will continue to grow in spirit, scope, and attainments second to none amongst the various State Medical Association of the A.M.A.

Again, my thanks for the confidence and appreciation of services during these years past, that have been placed in me by our Association.

Respectfully,

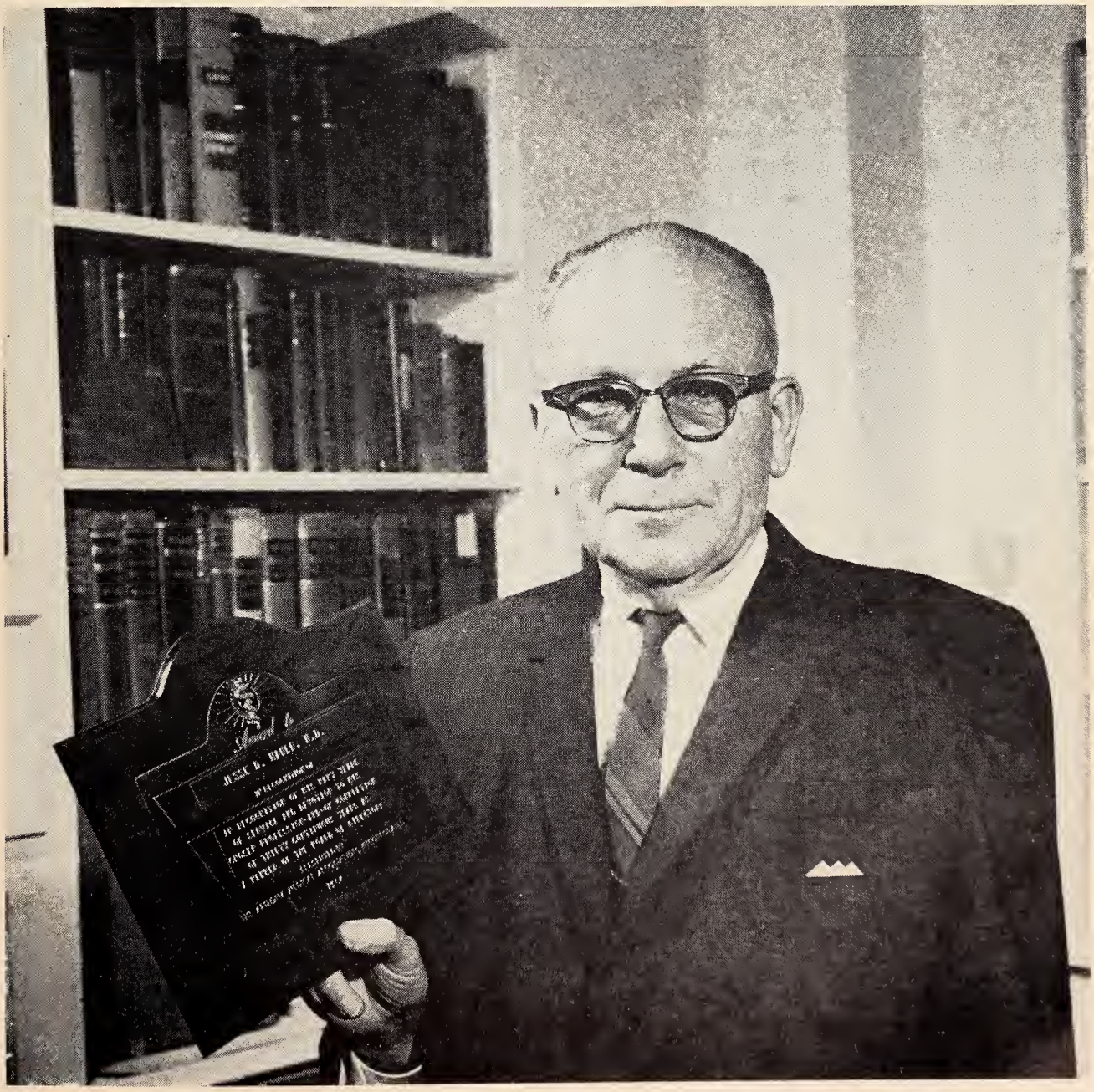
J. D. Hamer M.D.

Jesse D. Hamer, M.D.

A MAN DEDICATED TO SERVICE

this year completed thirty consecutive years of service as a member of the Board of Directors. This man has truly "served where he was needed." His range of activities cover being President of the Association to being a member or chairman of many committees, such as Legislative, Osteopathy, Insurance Investigation, Medico-legal, Legal service, Arizona Blue Shield and many others.

At the Annual Meeting of the Association in April 1964, Doctor Hamer was presented with a plaque of appreciation for his thirty continuous years as a member of the Board of Directors. The following is a letter from Doctor Hamer expressing his appreciation. It is with true humility and appreciation that we say to Doctor Hamer, "Yours has been a life of service, honor and dedication."



Dr. Hamer with the Plaque of Appreciation in 1964.

THROCKMORTON SPEAKS ON PHARMACY OWNERSHIP

Physician ownership of pharmacies is ethical as long as the patient is not exploited, the American Medical Association told Congress.

Robert B. Throckmorton, AMA general counsel, testified before the Senate Subcommittee on Antitrust and Monopoly that:

"The ownership of a pharmacy by a physician cannot in itself be equated with exploitation. The confidence and trust that the patient reposes in his doctor — to use his knowledge, his skill, his judgment in prescribing medicines, and his understanding of the patient's financial problems — preclude a blanket charge of physician-pharmacy-exploitation.

"It would be a disservice to the public and to the medical profession if from these hearings there issued the unwarranted impression that physicians could not be trusted to own pharmacies or to carry on their professional practices in other more important respects without exploiting their patients. It would be unfortunate . . . if a small incidence of violations and alleged violations came to be accepted as 'proof' of widespread unethical practices."

Trockmorton pointed out that both the AMA House of Delegates and the AMA Judicial Council had ruled that it is not wrong, per se, for a physician to have a financial interest in a pharmacy. However, he added, the AMA House of Delegates last year adopted flat prohibitions against physician ownership in a drug repackaging company or controlling interest in a pharmaceutical company while engaged in the practice of medicine. He said that there were relatively few cases of such ownership.

Throckmorton said that less than two per cent of the nation's 280,000 physicians have any financial interest in drug repackaging companies.

CENSURE OF COUNCIL ON MEDICAL SERVICE

Whereas, Tarrant County Medical Society originated the resolution in opposition to compulsory area-wide hospital planning which became Resolution 45 introduced into the AMA House of Delegates by the Texas Delegation to that House; and

Whereas, the AMA House of Delegates (in adopting the report of the Reference Committee on Insurance and Medical Service) took no actio on Resolution 45 on the grounds that it reaffirmed existing policy and agreed that the Council on Medical Service should sponsor a national conference on area-wide planning of health facilities; and

Whereas, the printed program of the Fourth National Congress on Voluntary Health Insurance and Prepayment under the auspices of the Council on Medical Service (Las Vegas, Oct. 2-6) lists as participants Mr. Nelson Cruikshank and a number of other known advocates of federal medicine (some of whom possess medical degrees) and also lists as participants for the consumer only college professors and an editor of *Time;* therefore

Resolved, that in view of this sample of the activity of the Council on Medical Service, the Board of Directors of Tarrant County Medical Society expresses grave doubt as to the value of any conference on area-wide planning of health facilities which might be sponsored by the Council on Medical Service; and further

Resolved, that the Board of Directors of Tarrant County Medical Society, in session September 8, 1964, requests the Texas Delegation to AMA to sponsor at the coming meeting of AMA an effort to censure the Council on Medical Service for offering at Las Vegas a podium for so many whose views are inimical to the practice of private medicine — coupled with an effort to eliminate the proposed conference on area-wide planning unless the House of Delegates can be assured of a meeting that will be in the interest of the existing policy of the House.

AMA RESOLUTION

TAX EQUALITY FOR THE PROFESSIONAL ASSOCIATION

Resolutions Numbered 16 (Arizona), 31 (Georgia), and 34 (Florida), were introduced by the States indicated into the House of Delegates of the American Medical Association in Annual Session June 22, 1964. The Report of the Reference Committee on Legislation and Public Relations is quoted below.

"Your Reference Committee next considered Resolutions 16, 31, and 34. Resolution 16 is concerned with changes proposed by the Internal Revenue Service, in the so-called Kintner regulations. Resolutions 31 and 34 call for support of proposed legislation which seeks to provide tax equality with corporations for professional 'associations' and professional 'corporations'. After due consideration of all the ramifications of these resolutions, your Reference Committee recommends the following substitute resolution:

Whereas, The American Medical Association has on numerous occasions supported the principle of tax equality for all Americans; and

Whereas, Employees of corporations may receive certain tax benefits withheld from the self-employed; and

Whereas, The federal courts have held in the Kintner and Galt cases that 'professional associations' are to be treated for tax purposes as corporations; and

Whereas, The Internal Revenue Service issued regulations dealing with the subject of professional associations; and

Whereas, The Internal Revenue Service has since proposed amendments to these regulations which discriminate against profesisonal associations and professional corporations and are without authority of law; and

Whereas, Legislation has been introduced to provide tax equality with business corporations for 'professional associations' and 'professional corporations'; therefore be it

Resolved, That the American Medical Association continue its vigorous opposition to tax regulations that discriminate against 'professional associations' and 'professional corporations'; and be it further

Resolved, That the American Medical Association continue its support of legislation which seeks to provide tax equality with business corporations for 'professional associations' and 'professional corporation'."

The substitute Resolution was recommended adopted by the Reference Committee on Legislation and Public Relations and was adopted by the House of Delegates of the American Medical Association June 24, 1964.

It should be noted that the above Resolution is an excellent example of the fact that the actions of Arizona doctors do reach the very highest level of policy making in the American Medical Association and do, therefore, become policies when approved by the House of Delegates. Too often it is felt that the doings of ArMA are greatly a waste of time. The above Resolution indicates that this is certainly not the case.

YOU ARE SUPPORTING FISHERMEN

By a vote of 202 to 170 the House of Representatives passed S 978 which permits nearly 118,000 self-employed fishermen free medical care. This bill, which some say goes further toward socialized medicine than any Medicare program, permits self-employed fishermen to receive at tax payers' expense medical care and hospitalization at hospitals operated by the United States Public Health Service.

ARIZONA SURGEONS RECEIVE FELLOWSHIPS

The Degree of Fellowship was granted to the following doctors by the American College of Surgeons at their recent five day meeting in Chicago:

William E. Brownlee, M.D. Tucson
Chauncey D. Buster, M.D. Yuma
Humberto C. Gonzalez, M.D. Tucson
Daniel J. Kuntz, M.D. Mesa
James A. Laugharn, M.D. Phoenix
Herbert J. Louis, M.D. Phoenix
Mason C. Reddix, M.D. Phoenix
Webster L. Sage, Jr., M.D. Phoenix
Wesley A. Soland, Jr., M.D. Tucson

BOMEX NEWS

The Board of Medical Examiners of the State of Arizona in meeting held August 8, 1964, elected the following officers for the fiscal year 1964-65: Carlos C. Craig, M.D. of Phoenix, President; Howard W. Finke, M.D. of Superior, First Vice President; Melvin W. Phillips, M.D. of Prescott, Second Vice President; Roy O. Young, M.D. of Scottsdale, Secretary-Treasurer; and W. R. Manning, M.D. of Tucson, Member. The Board also appointed Paul R. Boykin, Scottsdale, as its Executive Secretary and Bruce E. Robinson, Assistant Executive Secretary for its new offices, Suite 202, 4601 North Scottsdale Board, Scottsdale; the mailing address remaining Post Office Box 128, Scottsdale and the telephone number 946-3420.

Fifty-two (52) licenses to practice medicine in Arizona were granted by the Board at its meeting aforementioned and fifty-one (51) licenses were granted at its meeting in May, 1964, as follows:

AMOS, William Eugene (D), 461 W. Catalina, Phoenix, Arizona; **ATKINSON,** George Stanford (OPH-ALR), 418 High Avenue East, Oskaloosa, Iowa; **AVEGNO,** John Hilliard (ALR), 3225 Napoleon Avenue, New Orleans, La.

BALL, Joseph Wainwright (P), 650 Royal Avenue, Medford, Oregon; **BARBER,** Richard Robbins (GYN), 77 Bedford Street, Stamford, Connecticut; **BARD,** Eli (OPH), Republic Building, Denver 2, Colorado; **BOIKAN,** William Sclair (I C), 25 E. Washington, Chicago, Illinois.

CALLEN, Irwin Robert (I), 4753 North Broadway, Chicago, Illinois; **CLEMENTS,** Neil Carlton (S), 720 North Country Club Road, Tucson, Arizona; **CORNFELD,** Joseph Solomon (R), 479 Lyceum Avenue, Philadelphia 28, Pa.

DAVIDSON, Sheldon (OPH ALR), 13424 North 33rd Pl., Phoenix, Arizona; **DEMING,** Pierson Presbrey (U), 715 North Cascade, Colorado Springs, Colo.; **DUVAL,** Jr., Merlin Kearfott (ADM), University of Arizona, Tucson, Arizona.

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ZACHER, Richard Charles (GP), 350 W. Thomas Road, Phoenix, Arizona

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DANFORTH, John Thomas (PD), 1150 Country Club Drive, Mesa, Arizona; **DENTON,** Sherwood Edwin (U), 550 West Thomas Road, Phoenix, Arizona.

ESPOSITO, Francis Anthony (R), Harbor Gen. Hospital, Torrance, Calif.

FAHMY, George (GP), Good Samaritan Hospital, Phoenix, Arizona; **FISHMAN,** Arthur (U), 2040 W. Bethany Home Road, Phoenix, Arizona; **FITZPATRICK,** John Edward (OM GP), 1208 Bonita Street, Grants, New Mexico.

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WATSON, Ernest Starr (PD), 172 Schiller Street, Elmhurst, Illinois; **WESTERVELT,** Mark Justin (GP), Medical Clinic Building, Camp Verde, Arizona; **WHITE,** Whitney (Anthony) Ryan (S), Miami Inspiration Hospital, Miami, Arizona.

ZIEHM, Donald James (OB GYN), Good Samaritan Hospital, Phoenix, Arizona; **ZUBER,** Sidney H. (PATH), 1130 East McDowell Road, Phoenix, Arizona.

The President of the Board, Doctor Craig,

together with the Executive Secretary have in recent weeks visited hospitals in the Phoenix area having approved training programs, offering explanation of the new medical licensing provisions enacted by the 1964 Arizona Legislature, particularly to the interns and residents engaged in such programs and in an effort to guide hospital administrators and directors of medical education in following statutory provisions of the new law.

W. R. Manning, M.D. of Tucson, with the Executive Secretary, will represent the Board at a similar meeting for the Tucson hospitals, currently scheduled for November 21, 1964 in the St. Mary's Hospital, on the eighth floor, at 12:30 P.M.

The next regularly scheduled examinations of the Board will be given on December 16, 17 and 18, 1964, with the regular licensure meeting scheduled for January 9, 1965.

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Medical Director for Medical Disaster
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HEART-LUNG TRANSPLANTATION
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Tucson Medical Center

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*Additional Mexican panelists to be announced.

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INDEX ISSUE

Holiday Greetings

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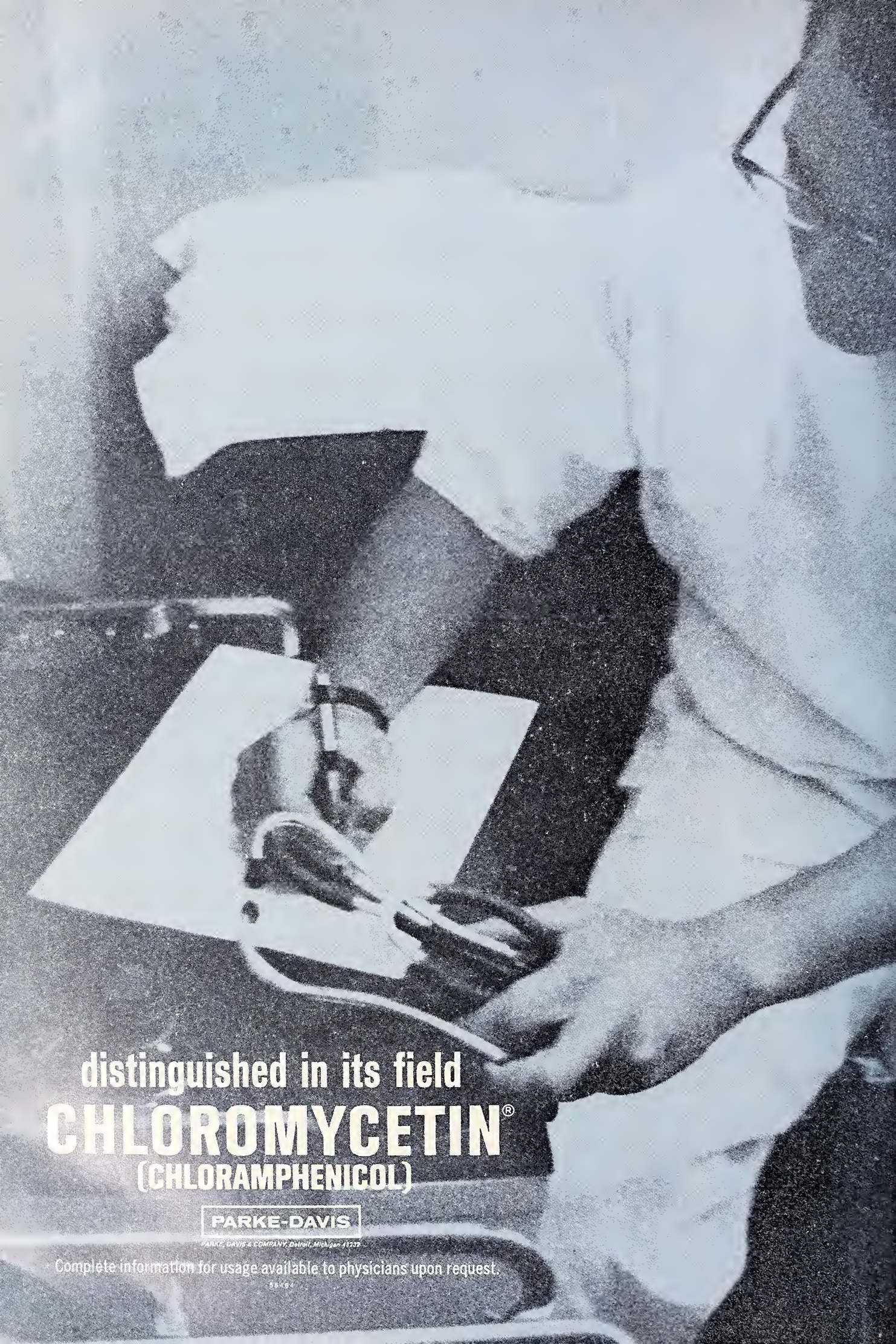
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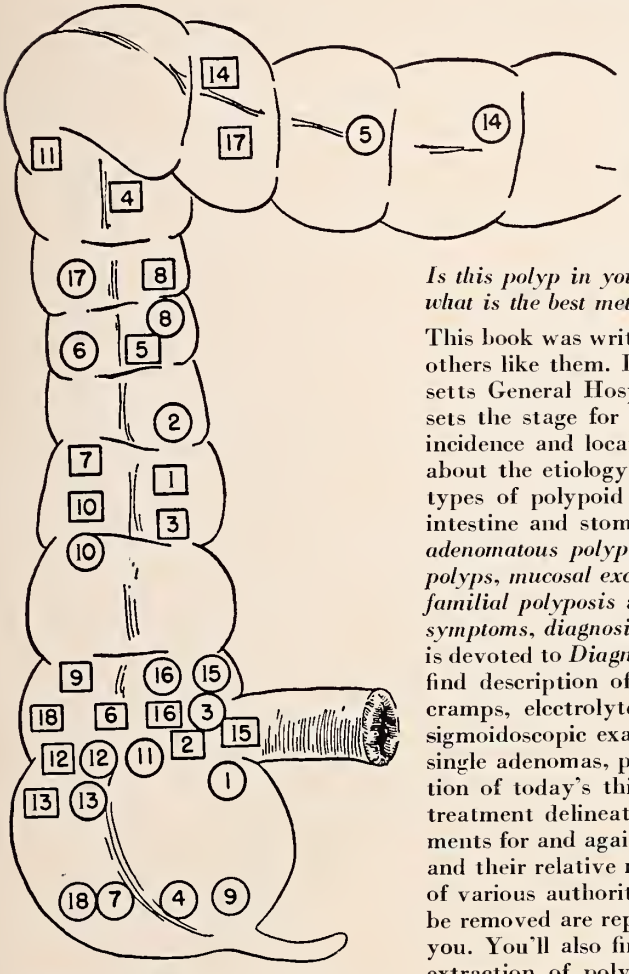


Figure 3-25. *Location of cancer and simple adenomas in resected cancers of the right colon. Squares locate cancers; circles, adenomas.*

Polypoid Lesions of the Gastrointestinal Tract

by Claude E. Welch, M.D.

Is this polyp in your patient benign or malignant? Should it be removed? If so, what is the best method for this particular lesion in this particular patient?

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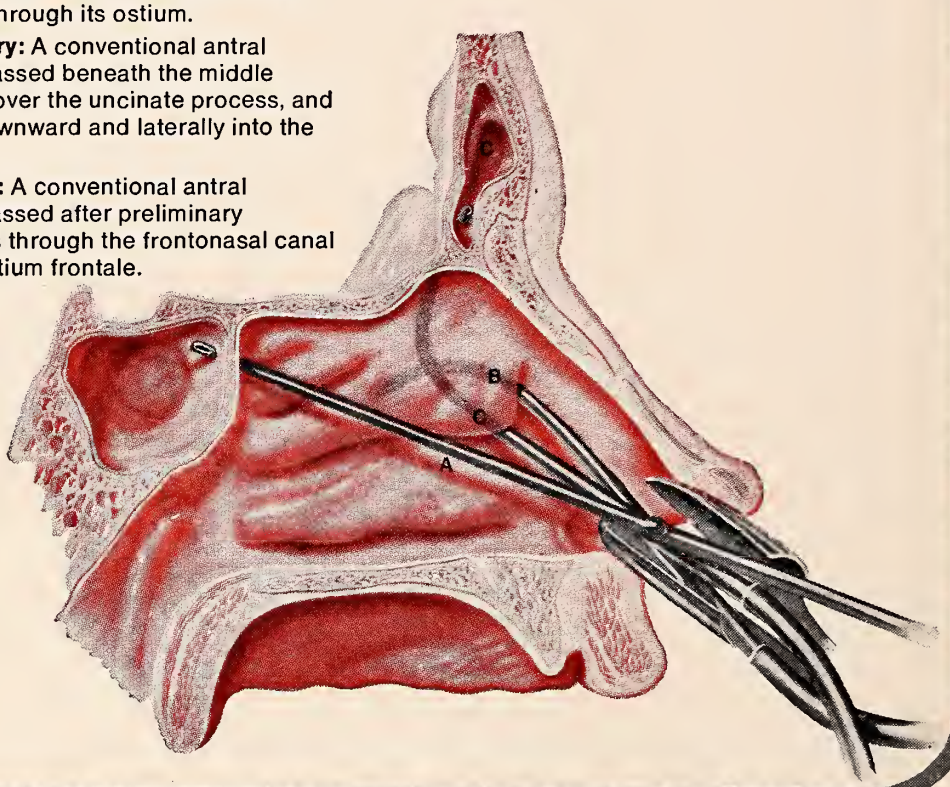
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A rhinologic approach to the sinuses
Sagittal anatomical section of nasal cavity showing approach for probing or irrigation by cannulas.

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*Reed, G. F.: Sinusitis, New England J. Med. 267:402, Aug. 23, 1962.

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Arizona Medicine

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SCIENTIFIC ASSEMBLY COMMITTEE

Meeting of the Scientific Assembly Committee of The Arizona Medical Association, Inc., held Sunday, October 25, 1964, in the French Quarter of the Safari Hotel, 4611 North Scottsdale Road, Scottsdale, Arizona, convened at 10:35 A.M., Richard L. Dexter, M.D., Chairman, presiding.

ROLL CALL

Present:

Drs. Brewer, W. Albert, President; Derickson, Philip G.; Dexter, Richard L., Chairman; Eddy, Jr., Warren D.; Gregory, T. Richard; Henderson, Charles E., Secretary; Jackson, Jr., Ralph A.; Nelson, Arthur R.; Phillips, Melvin W.

Staff:

Messrs. Carpenter, Robert, Executive Secretary; Robinson, Bruce E., Executive Assistant.

Guest:

Mr. Boykin, Paul R., Executive Secretary, Board of Medical Examiners — State of Arizona.

MINUTES

On motion regularly made and unanimously carried the minutes of the meeting of the Scientific Assembly Committee held June 14, 1964 were approved as printed and circulated among the members.

ORGANIZATION

Assistant Chairman

Arthur R. Nelson, M.D. (Phoenix), accepts appointment as Assistant Chairman.

Bowling Tournament Chairman

Warren D. Eddy, Jr., M.D. (Tucson), accepts appointment as Bowling Tournament Chairman.

Golf Tournament Chairman

Fred H. Landeen, M.D. (Tucson), accepts appointment as Golf Tournament Chairman.

ANNUAL MEETINGS

The Annual Meetings of this Association have been scheduled and approved for the years 1965 and 1966 as follows:

74th — Pioneer Hotel — Tucson — April 28-May 1, 1965 (Confirmed)

75th — Safari Hotel — Phoenix — April 27-April 30, 1966 (Confirmed)

It was regularly moved and carried that this Committee recommend to the Board of Directors that the 76th Annual Meeting of the Association be held in Tucson, Arizona (April 26 through April 29, 1967).

74th ANNUAL MEETING ARRANGEMENTS

Registration Fee

It was regularly moved that the registration fee for anyone in practice under two years be $10.00. This motion was amended to read: that the registration fee for anyone who has entered private practice since January 1, 1963 be $10.00. Both the amendment and the original motion were defeated.

It was regularly moved and carried that it be recommended to the Board of Directors that the registration fee for the 1965 — 74th Annual Meeting be established at $15.00.

It was moved by Dr. Brewer, seconded by Dr. Eddy and unanimously carried that the members of the Arizona Medical Association here (located in Arizona) two years or less be identified in some appropriate manner (special badge or ribbon); the Chairman, the Executive Secretary and possibly Dr. Nelson being assigned the obligation to determine upon such appropriate identification.

Guest Orator Assessment

The Chairman stated that he was not in position to report further at this time in the matter of fee of $150.00 established by the Board of Directors of the Association to be charged specialty groups holding luncheon or dinner meetings, using a guest orator provided and participating in the scientific section of the Annual Meeting program. He agreed to confer with several of the specialty groups and report at the next meeting of this Committee.

President's Reception — Dinner-Dance

The Chairman reported that he had conferred with Tiny Fortman's Orchestra and it is agreeable to again perform during the President's Dinner-Dance at the Pioneer Hotel, Friday, April 30, 1965. It is proposed that five pieces be provided from 9:00 P.M. to 1:00 A.M., at a fee of $135.00. A contract is in the possession of the Chairman. The Committee accepted the proposal.

The Chairman further reported that negotiation had been made with the Arthur Murray Studios for professional Ballroom Dancing Exhibition and that it had been further suggested that following this Exhibition there be staged a dancing contest among the guests, possibly including but not limited to the "shimmy," "twist," etc. The Committee approved the Exhibition and contest directing the Chairman to conclude the negotiations, calling attention to Tiny Fortman's Orchestra that it will be expected to play during the Exhibition and, of course, it will be further expected to play during the contest.

Fiesta Mexican Dinner

The Chairman reported that he wished to recommend the hiring of one Leo Seldono to provide four pieces of Mariachi Music, 7:30 P.M. to 9:00 P.M., at the Hotel Pioneer, Tucson, Wednesday, April 28, 1965, at a fee of $80.00. Approved.

Scientific Sessions Program

At the meeting of this Committee held June 14, 1964, the theme of the 74th Annual Meeting was suggested: "Accidents — Our Number One Public Health Problem." "Athletic Medicine" was further suggested as a possibility of being incorporated into this theme.

It was determined that a "Question and Answer" period following each speaker was preferable to "Discussants."

At the suggestion of Dr. O'Hare, Thursday afternoon (4/29/65) will be devoted to a panel presentation, "a mock trial for civil suit," to be scheduled for 3:30 P.M. Dr. John R. Schwartzmann will participate, together with "expert" witnesses, Tucson lawyers, including Richard Grand (Pima Society Attorney).

Discussion ensued on numerous subjects: (1) desirability of developing the program for Thursday on "trauma" and Friday on "athletic medicine" or a combination of both each day, the former expressed preferable; (2) whether or not coaches should be invited and on what level, possibly requesting the Arizona Coaches

Association to designate representatives; (3) panel program Thursday morning on "burns," the medical-surgical approach to management; (4) panel program Friday morning on "traumatic neurosis;" (5) disaster medicine programming; and a number of suggestions were offered as to acceptable speakers, authorities in their respective fields. The Chairman agreed to make contacts and complete the program at an early date.

It was determined that Merlin K. DuVal, M.D., Dean of the University of Arizona Medical School, would be invited and asked to report progress on its organization scheduled to appear during the General Sessions, Wednesday morning, April 28, 1965.

Exhibits

It was reported that there was mailed October 7, 1964, 371 invitations to prospective commercial exhibitors. To date thirteen booth allocations have been reserved.

Advertising

Regarding advertising, it was reported that in 1964 three membership mailings were undertaken; one in early January, a second in February and a third in April. It was determined that the Chairman would meet with the Executive Secretary and plan for an appropriate program advertising the 74th Annual Meeting.

Woman's Auxiliary

Mrs. William C. Scott, Convention Chairman of the Woman's Auxiliary, by letter dated October 20, 1964, reported room accommodations desirable for the activities of that group. It is desirable that the Varsity Room, for a planned Continental Breakfast and First General Session, be arranged (in 1963 it was held on Thursday), together with accommodations, rooms I and J on the Mezzanine floor for a Hobby Show; the Hospitality Room again to be provided in the corridor and lounge adjacent to the Terrace Room. There is every indication that these accommodations can be provided.

COMMUNICATIONS

Editorial

Editorial of Robert F. Lorenzen, M.D., Editor of ARIZONA MEDICINE, appearing in the September, 1964 issue, was presented and read. It is suggested that this Committee consider the possibility of setting aside one afternoon in which the scientific sessions are divided into subsections representing various specialty groups and a general practice group. Registered Association members not of a specialty or general practice society should be invited to attend any of these meetings. Received.

Nursing

In conjunction with desirable liaison between the medical and nursing professions, Dermont W. Melick, M.D., Chairman of the Subcommittee on Medical Education of the Professional Committee, suggests that two meetings be held each year, one to be scheduled during the Annual Meeting of this Association, the second during the Annual Meeting of the Nurses' Association. The latter is scheduled for November, 1965. Received.

Pharmacy

Dr. Brewer expressed interest in promoting a similar meeting between medicine and pharmacy which could be held annually either at the Association meeting or that of Pharmacy. He will submit this recommendation to both the Professional Committee and the Board of Directors for consideration. Such liaison, it is the hope, will immeasurably improve the relationship between the doctor of medicine and the pharmacist providing a format for better understanding of the respective operations and licensing statutes. A panel discussion with questions and answers could be arranged which would be enlightening to all participants. It was determined to defer action on this subject until a later date.

Blue Shield

It was reported that the Blue Shield Corporate Body is agreeable to the program outline of its meetings; the first session to be held Wednesday, April 28, 1965 at 10:30 A.M.; the second, Saturday, May 1, 1965 at 10:30 A.M. Blue Shield Reference Committee meetings will be scheduled to be held Friday afternoon, April 30, 1965 at 3:00 P.M. The joint Association-Blue Shield Reception and Supper scheduled to be held Wednesday evening, April 28, 1965 is likewise acceptable, Blue Shield to contribute financially thereto. Received.

MEETING ADJOURNED AT 12:55 P.M.

Charles E. Henderson, M.D.
Secretary

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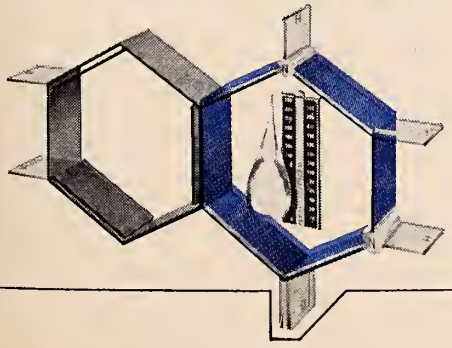
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CONTRAINDICATION: Anuria.

1. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. J. Amer. Geriat. Soc. 11:945 (Oct.) 1963.

2. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, California, Nov. 25-28, 1962.

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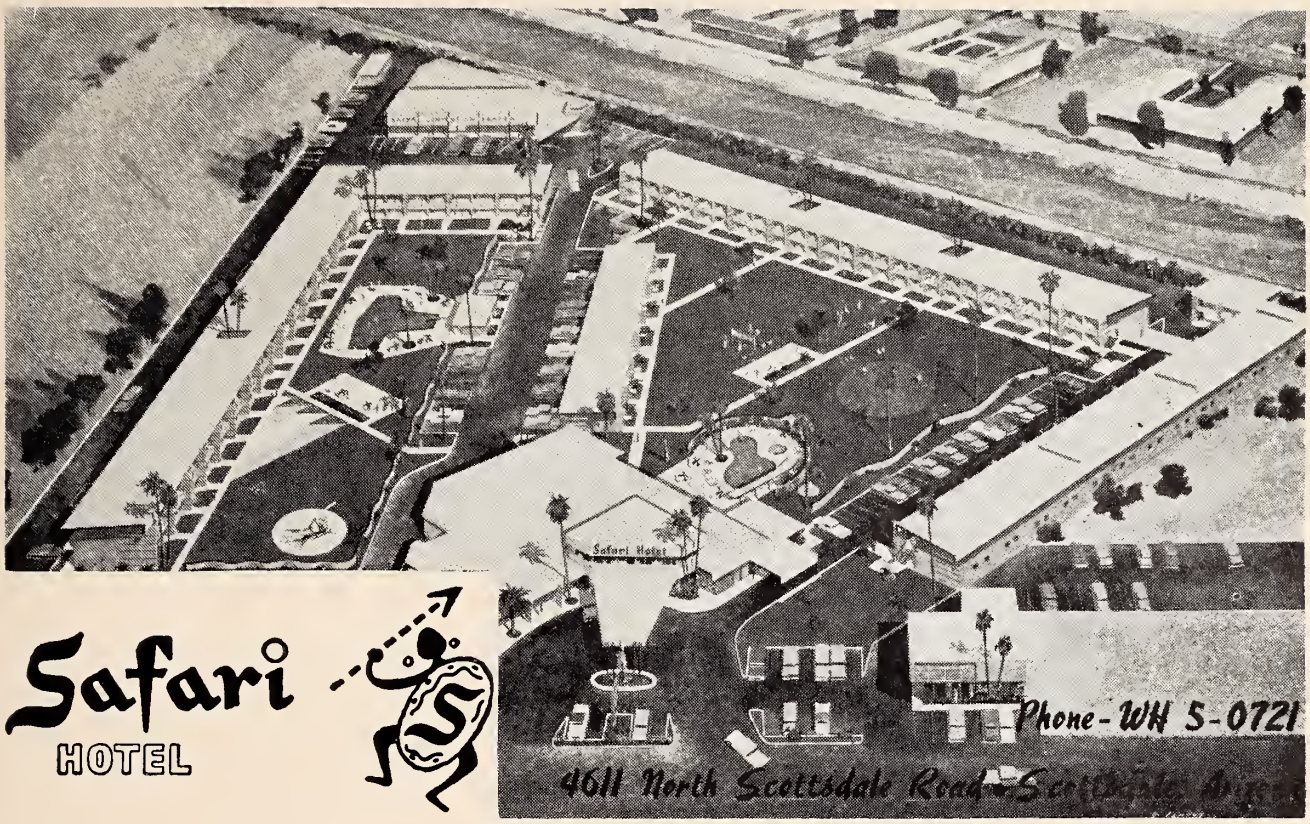
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UNUSUAL STOMACH PROBLEMS

And A Summary of Postoperative Mortality of Gastric Surgery in A Small Hospital

When discussing a surgical experience in any area of the body a surgeon is prone to discuss the unusual cases he has seen and the postoperative fatalities. These two groups of patients lend themselves best to a discussion that will teach us important lessons to be learned.

This study is drawn from a seven year experience in a 50 bed community hospital. The absence of a county hospital in the area has made the case material unselected. The variety of problems encountered, during this period, in 176 major gastric surgical procedures on 169 patients, have been stimulating, taxing, and, at times, disappointing.

In this group of patients only two were due to malignancy. 147 procedures were done for acid-peptic disease of the stomach and duodenum and the related problems.

A tabulation of the procedures performed during the period of this study shows (Figure 1) resection procedures to be the most frequently performed followed by vagotomy and pyloroplasty. There have been 10 patients less than one year of age in the entire series of cases. One case, which will be presented more in detail later, was 5 years of age at the time of gastric resection. There were 12 postoperative deaths in 176 procedures. (Figure 1 A).

Resection Procedures

Six of the fatalities occurred following a resection procedure on the stomach. The first death occurred following a total gastrectomy, partial esophagectomy, splenectomy and esophagojejunostomy which was done for extensive carcinoma of the cardia of the stomach in a 48 year old man. Leakage of the anastamosis with esophagopleural fistula and bilateral emphyema devoleped on the 9th postoperative day which lead to death 17 days postoperatively.

After reading this summary of unusual gastric surgery problems, including postoperative mortalities, you may be stimulated to subject some phase of your own practice to thoughtful evaluation.



by
C. Herbert Fredell, M.D., F.A.C.S.

Presented at Arizona Chapter of Ameriean College of Surgeons Meeting, Flagstaff, Arizona, August 31, 1963.
Chief of Surgery, Flagstaff Hospital, Flagstaff, Arizona.

FIGURE I
SURGERY OF THE STOMACH
8-1-56 to 8-1-63
Procedures

Gastrectomy	68
(Total – 2)	
(Vagotomy – 21)	
Vagotomy and Pyloroplasty	65
Vagotomy	2
Closure of Perforation	12
Gastrojejunostomy	10
Gastroduodenostomy	1
Gastrotomy	6
Pylorotomy	2
Pyloromyotomy	10
TOTAL	176

169 Patients
12 Deaths postoperatively
11 Procedures done on an emergency basis
8 Procedures done for massive bleeding

The second death occurred in a patient 39 years of age who sustained a severe blunt injury to his abdomen. He had extensive lacerations and contusions of the stomach, duodenum and pancreas which required a subtotal gastrectomy, duodenectomy, and partial pancreatectomy. A gastrojejunostomy and Roux-Y choledochojejunostomy were done also. After a stormy post operative course with massive blood replacement and high fever he expired on the 8th postoperative day.

The third patient who died postoperatively was a 68 year old alcoholic cirrhotic who had jaundice as well as other deranged liver chemistries. He had known esophageal varices and a 2 cm. diameter pyloric peptic ulcer. He had two bouts of massive upper gastrointestinal hemorrhage during the preceding 6 months prior to his admission which prompted surgical intervention. He had massive gastrointestinal bleeding which produced a desperation decision to intervene surgically. The bleeding was from an eroded pancreaticoduodenal artery. In order to achieve hemostasis a subtotal gastrectomy and gastrojepunostomy was successfully done. He did well until 8 days postoperatively when he became drowsy and had further derangement of his liver chemistries. He became comatose and died on the 14th postoperative day.

The fourth postoperative fatality occurred in a 43 year old man who had severe ankylosing spondylitis with severe skeletal pain that was relieved by large doses of cortisone which he took indiscriminently. He had gastrointestinal bleeding for 12 days before he submitted to hospitalization. A 3cm. prepyloric ulcer was found by barium roentgen examination. Massive blood replacement was required prior to the subtotal gastric resection and gastrojejunostomy. All went well until 48 hours postoperatively when he went into pulmonary edema that did not respond to

FIGURE I-A
SURGERY OF THE STOMACH
8-1-56 to 8-1-63
DEATHS

48	M	Carcinoma of cardia	Total gastrectomy	Empyema bilateral 17 days PO
39	M	Multiple injuries with hemorrhage	Subtotal gastrectomy, Duodenectomy & Partial pancreatectomy.	Peritonitis 8 days Postoperative
68	M	Duodenal ulcer in a severe cirrhotic with hemorrhage	Subtotal gastrectomy	Liver failure 14 days postoperative
43	M	Gastric ulcer with hemorrhage	Subtotal gastrectomy	Congestive heart failure 2 days postoperative
55	M	Duodenal ulcer with perforation and obstruction	Subtotal gastrectomy	Duodenal stump leak-bacteremia. 14 days postoperative.
64	M	Prolapse of gastric mucosastoma (post gastrectomy w/hemorrhage)	Subtotal gastrectomy	Shock due to ? coagulation defect. 8 hr. postoperative.
75	M	Hemorrhage-gastric ulcer in hiatus hernia	Vagotomy & Pyloroplasty	Cerebral vascular acc. 3 days postoperative
61	F	Hemorrhage gastric ulcer in a hiatus hernia	Vagotomy & Pyloroplasty	Myocardial infarction 3 days postoperative
59	M	Hemorrhage gastric ulcer in a hiatus hernia	Vagotomy & Pyloroplasty	Bacteremia 8 days postoperative
79	F	Hemorrhage—multiple gastric ulcers	Gastrotomy	Cardiac arrythmia digitalis intoxication during surgery
111	M	Perforated gastric ulcer	Closure of perforation	Heart block 8 days Post op.
58	M	Perforated gastric ulcer	Closure of perforation	Peritonitis reperforation 15 days postoperative

all measures.

The fifth fatality occurred in a 55 year old man who had a perforating obstructing pyloric ulcer which required an emergency subtotal gastrectomy and gastrojejunostomy. It was apparent on the 14th postoperative day that he had a subdiaphragmatic abscess which was promptly drained. It was due to a leakage of the duodenal stump suture line. He developed a bacteremia and went into irreversable shock 8 hours postoperatively and died.

The sixth postoperative death occurred as a result of a complication or late sequela of a subtotal gastrectomy and gastrojejunostomy.

A 64 year old man was admitted to the Flagstaff Hospital on 9-25-56 complaining of intractable upper abdominal pain associated with 1½ cm diameter penetrating duodenal ulcer. A subtotal gastrectomy and gastrojejunostomy was done without incident at that time.

He was readmited on 7-27-60 with persistent vomiting of blood and was hypotensive. Blood was given and an upper gastrointestinal barium study was attempted. Complete obstruction of the gastrojejunostomy was found.

He was given a total of 5000 cc's of blood before an operative assault was made on this problem. An exploratory gastrotomy was done revealing complete prolapse of the gastric mucous membrane into the stoma with a cauliflower like mass containing multiple bleeding ulcers. (Figure 3).

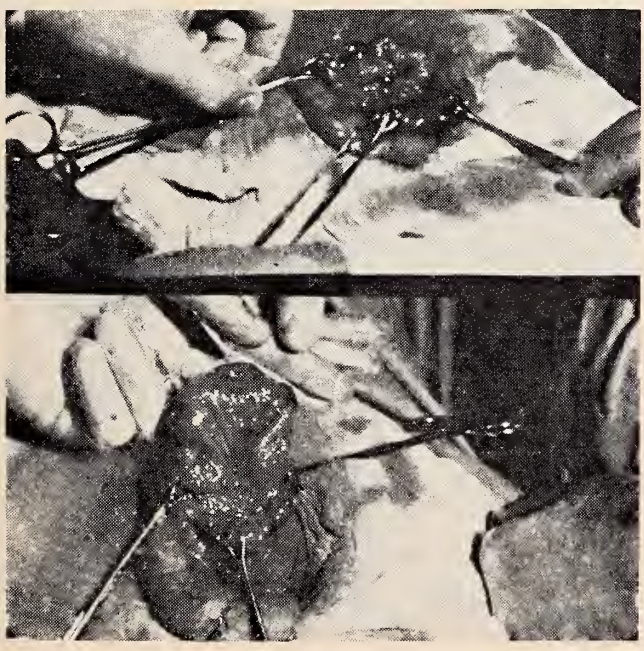


Figure 3

A resection of the distal 4 cm. of the stomach pouch and a gastrojejunostomy was done. Multiple bleeding sites were noted during the procedure. Diffuse oozing from the wound margins and raw surfaces progressed until three units of fibrinogen, fresh blood, and Vitamin K₁ were given. During the procedure 30002 cc more blood was given.

He responded from the anesthesia and slowly went into shock and died 8 hours postoperatively.

Comment:

This case represents an unusual complication of a subtotal gastric resection with a gastrojejunistomy. The extensive bleeding from multiple sites during surgery would support a diagnosis of a clotting defect due to massive transfusion therapy. He was intensively treated for this with prompt response. The case of his demise remains conjectural since an autopsy was denied.

A previously reported[1] unusual cause of upper gastrointestinal bleeding was seen in a 5 year old boy who required a subtotal gastrectomy and gastroduodenostomy. He had massive upper gastrontestinal bleeding with complete pyloric obstruction seen by barium studies (Figure 4). A hemigastrectomy and gastroduodenostomy were done. He continues to develop and have normal digestion 6 years later.

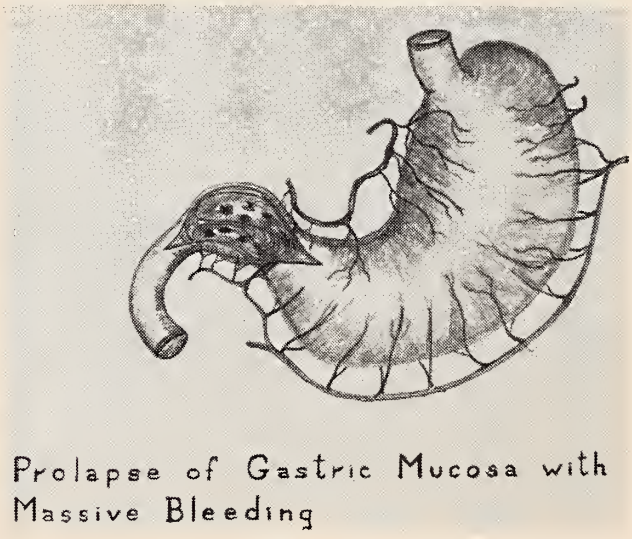


Figure 4

Comment:

Massive gastrointestinal bleeding in childhood is infrequent when compared to adulthood. Reports concerning the incidence of prolapse of gastric mucosa have varied a great deal and have lead to the concept that it is a normal physiological variant by many authors.

Lichstein[6] reported gastrointestinal bleeding of a minor degree to occur in 22% of cases of prolapsed gastric mucous membrane they studied. Moon and Speed[7] reported a case of gastric mucosa prolapse in an adult that required a subtotal gastrectomy. If obstruction, severe pain, or hemetemesis occurs with prolapse of pyloric gastric mucosa into the duodenum gastric resection is often the best treatment[1].

An unusual case was encountered during the period of this study that required a gastric resection procedure. A 52 year old woman had vague upper abdominal complaints associated with an atypical asthma. An upper gastrointestinal barium study was done in the course of the investigation. It revealed a 2cm. diameter submucosal mass in the greater curvature of the stomach. (Figure 5). A radical subtotal gastrectomy was done with a gastrojejunostomy. Gross examination of the tumor found an umbilicated mucous membrane over it. Microscopic examination revealed a malignant carcinoid tumor. The postoperative course was a benign 7 days. She developed some mild dumping symptoms one year later which responded to dietary therapy.



Figure 5

Numerous cases of carcinoid tumor of the bronchus, appendix, small intestine, colon, and rectum have been reported.[2] The carcinoid tumor excretes serotonin and disturbs the tryptophan metabolism producing severe vasomotor symptoms, an atypical asthma, and a type of heart disease that results from fibrosis of the right side of the heart.

Lattes and Grossi[6] reported 5 cases of gastric carcinoid in which local excision or gastric resection were done. They collected 35 cases from the literature and found that whenever surgical resection was done, even in the presence of regional metastases, long term arrests could be expected.

Congenital Problems

Two uncommon causes for pyloric obstruction were seen in infants.[5] The first case was a 4 day old infant who had progressive obstructive jaundice since birth accompanied by persistent vomiting of clear gastric contents. A roentgen film of the abdomen revealed a large gas filled stomach with no gas in the intestines.

Exploration was done and a large gall bladder was found which was used for an operative cholangiogram. The cholangiogram revealed an atresia of the intrapancreatic portion of the common duct. Further exploration revealed an atresia of the mucosa of the pylorus and first portion of the duodenum. (Figure 6). A cholecystojejunostomy and gastroduodenostomy were done without difficulty. The infant promptly lost his jaundice and began eating without difficulty.

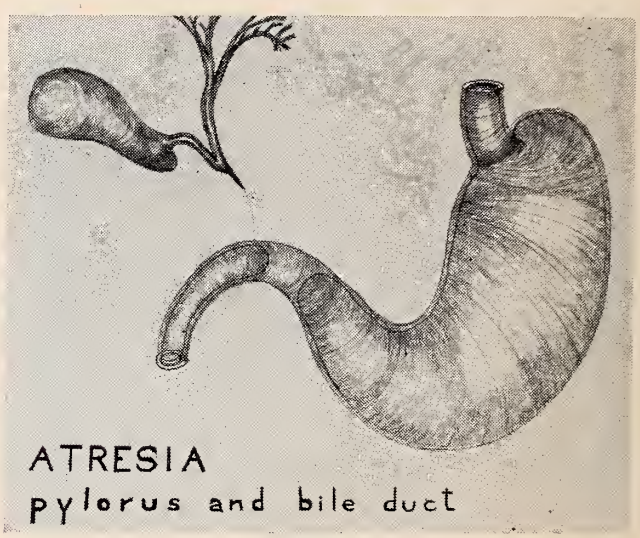


Figure 6

Multiple atresias are not usually as amenable to simultaneous surgical correction. An atresia of any portion of the gastrointestinal tract is incompatable with life and should be treated as soon as is feasible. The mortality rate for surgery of intestinal atresia is high. It is desirable that the surgeon perform only one well planned and executed procedure.

The second case of pyloric disease in an infant was seen in a six week old boy who developed intermittently progressive jaundice with periodic vomiting of bile stained material. Serum ehemistries confirmed the obsturctive nature of the jaundice. A liver was palpable 2 cm. below the costal margin on the right. An exploration was done and a large gall bladder was found which was used for an operative cholangiongram. Diffuse narrowing of the common duct was noted. Also seen was a moderate amount of edema of the hepatoduodenal ligament with enlarged lymph nodes and edema about the pancreas which was confluent with an edematous 3x2cm. pyloric olive tumor due to hypertrophie pyloric musculature. A pyloromyotomy was done. This was followed on the second postoperative day with rapid fall of the jaundice and normal alimentation.

In this case a pylorie obstruction was not sought because of the jaundice and the palpable liver. Iit is of some interest that once the pyloric obstruction was relieved that the jaundice promptly regressed. One might conjecture that the edema of the area subsided as soon as the pyloric obstruction and large hypertrophic muscalature were divided. With the edema relieved the extraluminal obstruction was relieved.

Vagotomy and Drainage Procedure

If we return to our discussion of the mortality in this group of 176 major surgical proeedures there are three more deaths that merit a brief discussion. There were 65 patients that had a vagotomy and pyloroplasty. Three of these patients died postoperatively.

The first death occurred in a 75 year old man with massive gastrointestinal bleeding due to a gastric ulcer at the cardia in association with a hitaus hernia. The ulcer was sutured through a gastrotomy and the hiatus hernia was repaired. A vagotomy and pyloroplasty were done. He had a cerebral thrombosis on the third postoperative day and died.

The second death occurred in a 61 year old woman who had massive upper gastrointestinal bleeding for 8 days with blood replacement elsewhere prior to admission to the Flagstaff Hospital. She was anemic on admission and required further blood replacement before an exploration revealed a bleeding 2 cm. gastric ulcer in the gastric cardia. This was sutured through a gastrotomy. A hiatus hernia was repaired and a vagotomy and pyloroplasty were done. She responded nicely to the surgery until the third postoperative day when she had a massive myoeardial infarction with ventricular fibrillation and died.

Gastrotomy

The third patient was a 59 year old man who had massive gastrointestinal bleeding from a gastric ulcer in a hiatus hernia. He did not respond to all conservative measures and a gastrotomy with suture of the ulcer was done. A hiatus hernia repair and vagotomy and pyloroplasty were also done. He developed a bacteremia with jaundice from the day of surgery until his death 8 days postoperatively. The organisms were resistant to all antibioties but chloromycetin whieh he received in massive doses.

Another one of the posteperative deaths occurred during emergency surgery for massive gastrointestinal bleeding in a 79 year old woman. She had severe arteriosclerosis with recurrent bouts of auricullar flutter and fibrillation in spite of medical measures. She had two bouts of massive upper gastrointestinal bleeding during the 3 weeks prior to her last admission, while under intensive medical treatment. Upper gastrointestinal roentgen barium studies were not diagnostic. She received 3000 cc of blood in addition to the usual medical measures for bleeding with continuation of bleeding. As a desperation move an exploration was done. Gastrotomy revealed multiple superficial gastric ulcers throughout the stomach, with active bleeding from multiple sites. Before any therapy could be instituted she developed a severe auricular flutter and went into shock. Intravenous Cedilanid was given and followed in 15 minutes by cardiac arrest which was unresponsive to all therapy.

Her cardiac arrest was presumed to be due to an overdose of Cedilanid.

Plication Procedures

Two patients who had perforated ulcers died postoperatively. One was an 111 year old Navajo Indian who has been reported previously[4] because he developed a neomycin apnea which was successfully treated. He was admitted to the Flagstaff Hospital complaining of vague upper abdominal pain and vomiting. His roentgen film of the abdomen showed an intestinal gas pattern which was thought to be intestinal obstruction probably in the mid-transverse eolon.

A 4 cm. diameter perforated ulcer on the pos-

terior aspect of the body of the stomach with a fluid filled lesser sac was found at the time of surgery. The large amount of fibrinous cloudy fluid was evacuated from the lesser sac and the perforation was plicated. His peritoneal cavity was lavaged with neomycin solution. He promptly went into shock and did not breathe. His shock responded to vasopressors and his neomycin apnea responded to 14 hours in the respirator and intravenous Tensilon. On the 8th postoperative day he developed a complete heart block and died.

The second fatality with a perforated ulcer was a 58 year old man who had a vague history of abdominal pain in his left lower quadrant for several days. He did not appear acutely ill until 12 hours after admission when he complained of severe upper abdominal pain. At that time free air was discovered beneath the diaphragm by roentgen film. It was apparent he had peritonitis. His peritonitis was massive and fibrinous at the time of the plication of his ulcer. Postoperatively he was febrile and hypotensive for several days. On the eighth day postoperatively a right subphrenic collection of pus was drained and a new perforation of the stomach was discovered which was plicated. His course following this was one of persistent septicemia until his death seven days later.

Digressing from a presentation of deaths, I can mention in closing that one unusual intragastric foreign body was seen and removed during the time of this study[3].



Figure 7

A 16 year old girl had persistent vomiting with vague abdominal pain which was investigated by upper gastrointestinal barium studies (Figure 7). There was a large intragastric foreign body which proved to be a large trichobezoar. A gastortomy with removal of the bezoar was done. Further inquiry into her history postoperatively revealed that she habitually wound hair about her tongue and that she had been taken to a dermatologist two years previously because of alopecia.

In 1957 Mullin reported 211 cases of gastric trichobezoars from the literature. The surgical treatment of a bezoar is removal. If untreated the mortality rate is 50 to 70%. This is due to starvation, intestinal obstruction, ulceration, perforation and hemorrhage.[3]

Conclusions

A portion of a 7 year experience of a surgeon engaged in the private practice of general surgery in a 50 bed community hospital has been presented. This study has dealt with the surgery of the stomach. Unusual stomach problems have been encountered, treated, and documented. A summary of the postoperative deaths associated with gastric surgery in a small hospital has been presented. It is the author's hope that other surgeons will be stimulated by this study to evaluate their own experiences with gastric surgery.

It is of more than routine interest that the causes of death in this group of patients who did not survive gastric surgery were similar to other postoperative fatalities that other surgeons have reported. Eleven of the twelve fatalities were operated upon on an emergency basis under difficult circumstances. Eight of the twelve fatalities were operated upon for massive bleeding which could not be managed in any other way. Three of these occurred in gastric ulcers in association with a hiatus hernia.

During the seven years that surgery of the stomach has been done in a small hospital some unusual problems have arisen that have been successfully treated. They have included (1) Prolapse of pyloric gastric mucosa requiring a gastric resection in a 5 year old; (2) Gastric carcinoid tumor; (3) Atresia of the pyloric mucous membrane; (5) Hypertrophic pyloric stenosis producing edema and extracholedochal obstruction; (5) A gastric trichobezoar.

It is beyond the scope of this paper to discuss

the field of gastric surgery. The merits of extensive extirpative procedures for malignancy have been extolled and refuted. Gastric cancer has one of the poorer prognoses amongst malignancies the surgeon must treat. Early diagnosis and aggressive treatment of gastric ulcers seems to offer some improvement in gastric malignancy survival in recent years.

The merits of gastric resection of one type or another in contrast to the vagotomy and drainage procedure have also received considerable attention in recent surgical publications. It would seem that the more physiological the surgical treatment remains the better it will be for the patient. When dealing with a life threatening situation we find ourselves faced with more drastic therapy than when it is not so severe. Peptic ulcer disease is not malignant. It produces life threatening situations which can be treated with a less drastic procedure than removal of the stomach or a portion of it. The established lower morbidity and mortality of vagotomy and a drainage procedure is strong evidence in its favor. The author's experience confirms the long held suspicion that the more physiologically based surgical procedure of vagotomy and pyloroplasty is superior to resection procedures for acid peptic disease of the duodenum.

SUMMARY

1. During a seven year period in a 50 bed community hospital the author has performed 176 major surgical procedures on the stomach in 169 patients.

2. There have been 12 postoperative deaths in 176 procedures; eleven of the twelve deaths occurring in cases of emergency surgery. Eight of the twelve deaths occurred in patients who had massive upper gastrointestinal bleeding. Three of the massive bleeders who died after surgery had bleeding from a gastric ulcer in the cardia associated with a hiatus hernia.

3. The largest group of postoperative deaths occurred after gastric resection procedures.

4. A brief discussion of the twelve cases that died postoperatively and the five cases with unusual surgical problems in the stomach has been presented.

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A NEW TECHNIQUE FOR

Utilizing a Needle Nerve Stimulator-Locator

PUDENDAL nerve blocks are used quite frequently in obstetrics, with their success being limited by the experience of the obstetrician and the anatomical anomalies in the patient. However, the pudendal nerve can be located by electrical stimulation.

A small (3½"x5½"x2) portable trnasistomized nerve stimulator has been constructed (Fig. 1).* This instrument delivers a square wave impulse of 0.001 second duration at intervals of one second. Its output can be varied from 0.3 to 30 volts. One pole of the output voltage is grounded to a metal plate or needle connected to the patient. The negative pole is a clip which fastens to the metal Luer-Lok of a standard syringe. A standard needle, of the size desired, insulated with plastic point except at the tip completes the circuit (Fig. 2).

Utilizing a trans-perineal technique with a six inch #22 insulated needle the ischial spine is approached by the end of the needle which is guided by the operator's hand in the vagina.

The needle is used as a stimulator-probe with 10 volts until motor stimulation of the hemi-perineal muscles is initiated. This "twitching" can easly be felt by the intra-vaginal hand of the operator. Voltage is decreased to 5 volts and the needle-tip advanced and/or re-directed until motor stimulation again occurs. At 5 volts the needle tip is within 5 mm. of the pudendal nerve plexus. After aspirating to avoid intra-vascular injection 5 to 10 ml. of local anesthetic agent are injected. This will terminate the motor response. Aspiration of blood is not sought as a landmark, and is most usually not obtained.

Using this technique all pudendal nerve blocks will be successful if motor stimulation of the hemi-perineal muscles is obtained.

Pain stimulation of peripheral nerves occurs at higher voltages than motor stimulation. The patients, therefore, do not complain of paresthesia or pain during motor stimulation of the perineal muscles.

The setting up of the equipment is not time consuming and is compatible with a hurried delivery, considering that results are so dependable.

This technique has been used in almost all other peripheral motor nerves of the body with equal success. These positive results produce accurate localization, assurance of success, lower doses and volume of local anesthetic agent, and serve as an excellent method of teaching nerve blocks.

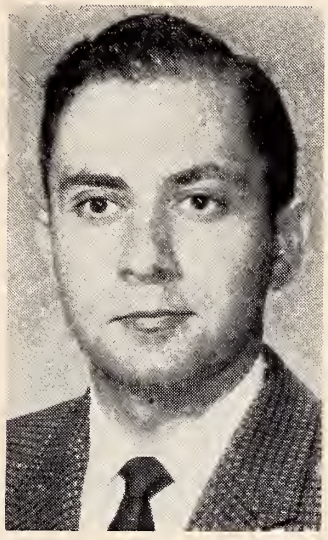
* The Medition Company, El Monte, California

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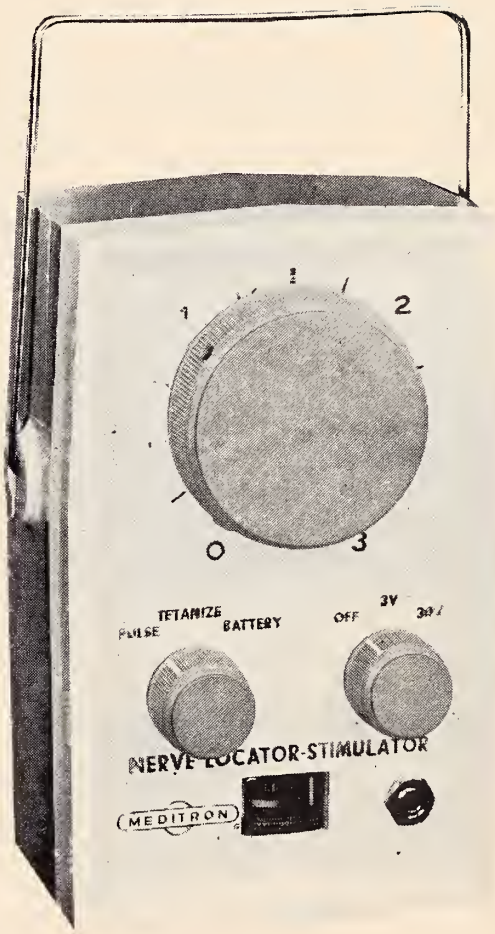
The author describes a new technique for pudendal nerve block utilizing a needle nerve stimulator-locator. If the equipment is not too expensive or unreliable, it may prove to be worthy of wide utilization.

PUDENDAL NERVE BLOCK

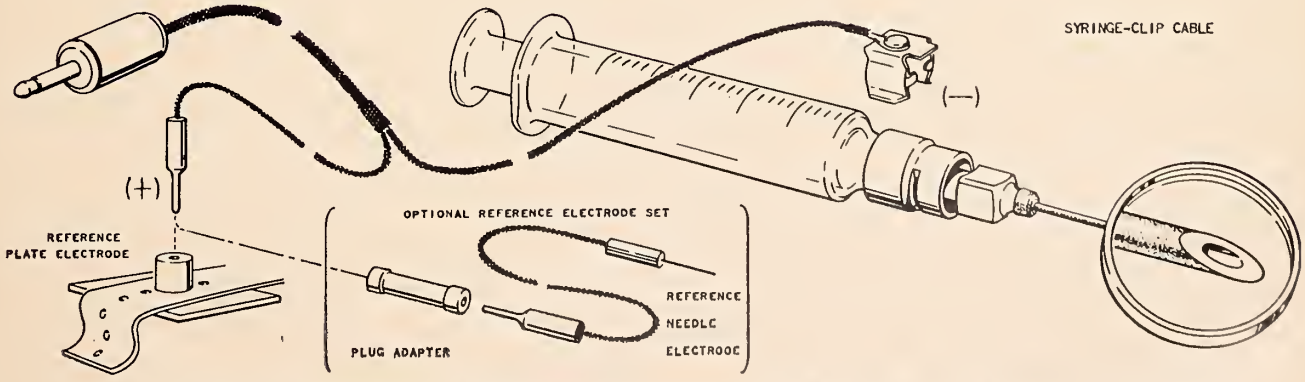


by

Gordon M. Greenblatt, M.D.



(Fig. 1) Nerve-stimulator-locator



(Fig. 2) Wiring diagram showing magnified view of insulated needle. Reference electrode equals ground.

The Pathophysiology And Treatment Of Fresh Water Drowning

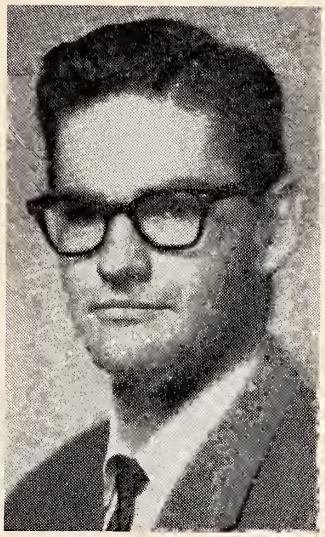
THE post-resuscitative treatment of the near-drowned patient is being presented to the medical profession in a new and increasingly compelling fashion. There has been a tremendous increase in the number of back-yard and community swimming pools with an attendent rise in the number of drowning accidents. Coincidentally, there has been wide publicity and great emphasis in the lay press on the highly effective "mouth-to-mouth" resuscitative technique. The result of these two facts has been to improve the pool-side salvage rate in drowning accidents and thereby to present to hospitals and physicians increasing numbers of severely drowned, partially resuscitated patients. A number of these patients die in our hospitals because our post-resuscitative therapy is too conservative and not based on sound physiologic principles. A detailed knowledge of the pathophysiology of fresh water drowning is essential before rational therapy can be administered, yet our knowledge of the physiologic events of drowning is based on experimental animals almost exclusively and is seant. This communication proposes to review the known physiology of the fresh-water drowning accident and to proceed from this to a consideration of a new therapeutic approach to the therapy of the drowned victim.

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Presented at the Regional Meeting of the American College of Physicians, Tucson, Arizona, December, 1963.

The Physical Reaction to Drowning

The initial reaction to total inescapable submersion is one of acute, blind panic and is characterized by violent struggles to avoid suffocation and by automatic swimming movements. These struggles usually occupy the first two-and-one-half minutes of submersion. (Fig. 1) As consciousness begins to wane, water is aspirated onto the larynx. The larynx responds by an acute, violent laryngo-spasm. The laryngo-spasm is so violent, in 10% to 40% of drowning victims, as to directly cause an anoxic death by strangulation. These people will not, parenthetically, show the typical autopsy findings of fresh water drowning



by
John G. McGregor, Jr., M.D.

Fresh water drowning remains a frequent cause of morbidity and mortality. The author reviews the recusitative and supportive measures useful in the care of the drowned patient. Because of marked hemo-dilution, hemolysis and electrolyte disturbance accompanying fresh water drowning, exchange transfusion is suggested as a means of rapidly correcting these chemical abnormalities.

but instead will show the sequelae of simple strangulation. In the remaining cases, automatic respiratory efforts and gasping movements cause large quantities of water to be swallowed into the stomach producing acute gastric distention and eventually vomiting. The act of vomiting and retching, plus the deepening level of unconsciousness cause relaxation of the larynx. Continued automatic respiratory gasping efforts aspirate large quantities of water into the tracheobronchial tree. This aspirated fluid rapidly passes downward to inundate the alveoli. At this point deep unconsciousness supervenes and the victim is flaccid, making only feeble automatic respiratory efforts.[1,3,4,7,13]

A Review of the Pathophysiology of Drowning

The fluid aspirated into the tracheobronchial tree passes rapidly into the alveoli where there is instantaneous transfer of this fluid across the alveolar-capillary membrane to the blood stream. (Fig. 2) Within three to four minutes, upwards of 70% of the circulating blood volume may be composed of the aspirated drowning fluid. This tremendous hemo-dilution causes abrupt and disastrous alterations in serum electrolytes and blood osmolarity.[3,18,19,20]

The abrupt hemo-dilution so alters the tonicity of the serum that a hemolysis of the circulating red blood cells rapidly occurs. As is shown in Figure 3, there is a rapid rise in the *plasma* hemoglobin levels and a concomitant drop in circulating red blood cells. The oxygen carrying capacity of the blood rapidly diminishes and tissue anoxia develops.[1,7,18,19,20,24]

The influx of the hypotonic fluid causes marked and rapid dilution of the serum electrolytes as is shown by Figure 4. All of the serum electrolytes, with the marked and significant exception of potassium, participate in this dilution. Potassium concentration actually rises to levels of approximately 8 mEq/L. (Fig. 5) This rise of the serum potassium in the face of the profound hemo-dilution is apparently due to the release

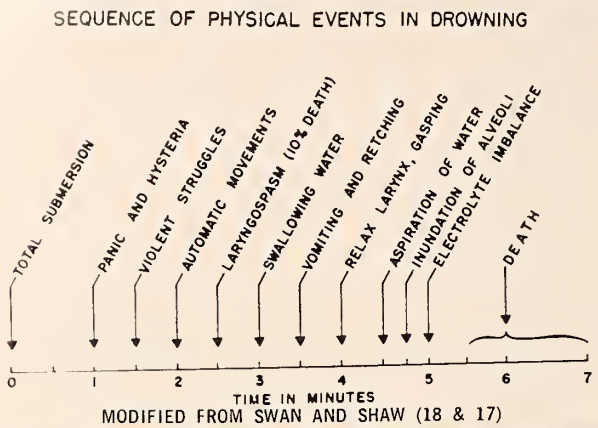


Figure 1. Schematic representation of the physical events which occur during drowning. There is tremendous individual variation in the actual times. The sequence of events is less variable and more important. (Table modified from Swan and Shaw. 17 & 18.)

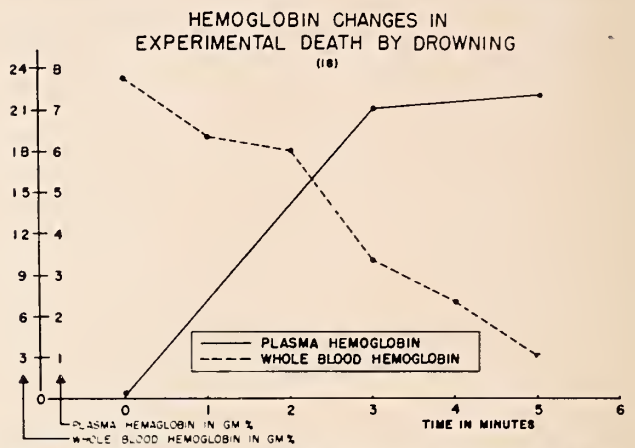


Figure 3. Composite changes in whole blood hemoglobin and plasma hemoglobin which occur in dogs during experimental Fresh Water Drowning. Modified from Swan, et. al. 18.)

of the ion from the lysed red blood cells and also the release of intracellular tissue potassium caused by the anoxia. The divergent changes of sodium and potassium so alter cell membrane potentials that, when coupled with the anoxia, they provide the environment for the production of ventricular arrhythmias.[18,19,20]

The marked alteration in the osmolarity of the circulating blood adversely affects all of the osmotic relationships between cells and fluids in the body. The most damaging of these effects occur in the brain, myocardium and kidneys. Few of them have been quantitated by experimental procedures, but the autopsy reports of drowning victims are mute testimony to their presence and their severity.[16,17,18,19,20,28]

The General Management of the Drowned Patient

The physician will rarely see the acutely drowned victim. The victim will have been removed from the water and will have had artificial respiration of some type applied by a lay-person or a semi-trained person at the poolside. To insure the success of this portion of resuscitation, reliance must be placed upon the various training media and the lay press to inculcate the general public with the method of "mouth-to-mouth" resuscitation. There is little question now of the efficiency of this method of artificial resuscitation and a great effort must be made by the whole medical profession to disseminate to the public information about it.[25,29]

When the partially resuscitated, partially drowned victim is brought to the hospital, the physician is presented with a true medical emergency. The first, and most pressing problem, is to accurately assess the severity of the drowning accident, for all subsequent therapy will be based upon this evaluation. The pulse, cardiac rhythm, blood pressure, respiratory rate and

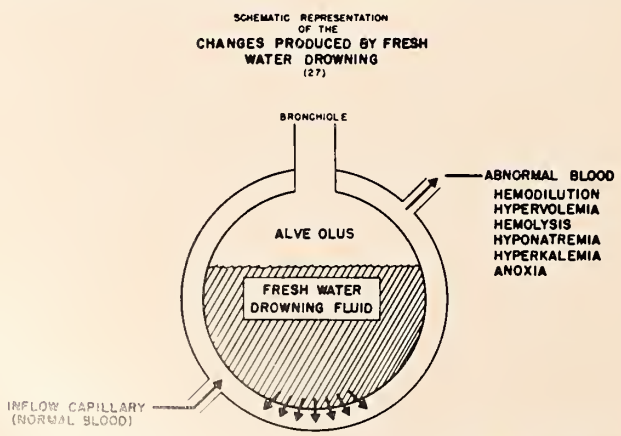


Figure 2. Schematic representation of the physiologic changes which occur during Fresh Water Drowning. (Modified from Shaw. 17.)

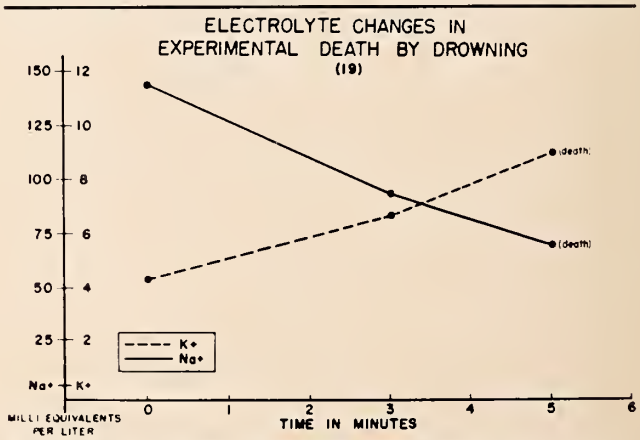


Figure 4. Composite changes in serum electrolytes which occur in dogs during Fresh Water Drowning. The marked alteration of the Na/K ratio is apparent as is the rapidity of the electrolyte changes. (Modified from Swan, et. al. 18.)

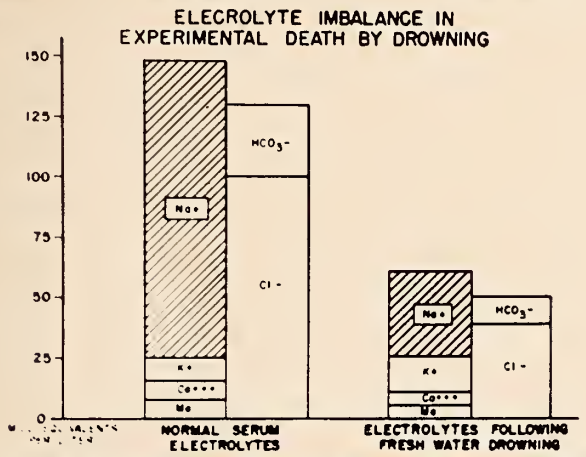


Figure 5. Summarization of the electrolyte changes which occur in dogs following death by Fresh Water Drowning. The graph illustrates the marked dilution of serum electrolytes which occur, and the abnormal Na/K ratio which is present.

level of consciousness all are immediatey available and excellent indicators of the severity of the drowning accident. They must be monitored by some responsible person in serial fashion for as long as the victim's condition warrants. Emergency laboratory data should include the whole blood hemoglobin or the hematocrit, the *plasma* hemoglobin, serum electrolyes and total proteins. These, too, must be followed in serial fashion. [22]

The patient must be provided with an adequate airway and this is best accomplished by an emergency tracheostomy, in all but the most minimally drowned patients. This tracheostomy will provide an avenue for an endotracheal tube and positive assistance to breathing should it be required. It will aso permit more complete aspiration of fluids and debris from the tracheobronchial tree. It will obviate the problems caused by laryngo-spasm and vomiting.

Oxygen therapy should be administered in a manner which best fits the needs of the patient. Oxygen by face mask or nasal catheter may be sufficient. Oxygen by an Intermittent Positive Pressure device will be required for most patients to counteract the tendency toward pulmonary complications. The more seriously drowned victim may require the assistance of an anesthesiologist.[22,26,27]

A large bore nasogastric tube should be inserted into the stomach in order to prevent vomiting and to avoid the mechanical problems of gastric overdistention.

A urinary catheter should be inserted and the urine output closely monitored.

A large caliber intravenous catheter should be introduced into the inferior vena cava through a femoral cut-down in all but the milder drowning accidents. This catheter will allow the physician to constantly monitor venous pressure and withdraw and administer blood and fluid as the situation demands.

One of the major threats that complicate the drowning accident is ventricular arrhythmia. This is probably the fatal terminal event of the post resuscitative phase of fresh water drowning. The best treatment of ventricular arrhythmia is prevention. Since it has been shown that ventricular arrhythmias are due to the combination of anoxia and abnormal potassium to sodium ratio, prevention can best be effected by rapidly restoring the oxygen carrying capacity of the blood and by normalizing the serum electrolyte relationships. We will consider the methods of accomplishing these ends shortly. It is vital that the physician treating a near-drowned patient remains constantly prepared to treat cardiac arrhythmias should they occur. This requires that the physician be mentally and physically anticipating this condition; be prepared to perform external cardiac massage; and be familiar with principles of electric defibrillation.[22,23] (Fig. 6)

The Definitive Therapy of Fresh Water Drowning

It is axiomatic that any therapeutic approach designed to combat a condition as catastrophic as that of drowning must be, in itself, vigorous, aggressive and pathophysiologically oriented. Any proposed therapeutic approach must be so designed that it simultaneously and correctively deals with the problems of hypervolemia, water intoxication, anoxia, shock, cardiac arrhythmias and electrolyte disarray.

At this point, in an effort to clarify the more definitive treatment of drowning, it is convenient to divide the severity of the drowning accident into three groups for discussion. The first group, the Minimally Drowned Group, would be composed of those individuals who were under water for something less than three-and-one-half to four minutes. They were promptly and effectively resuscitated at the pool-side and their vital signs remained normal and stable. On arrival at the hospital, they were fully conscious. All laboratory data were normal or nearly so and their electrocardiograms were normal. Urinary output remained normal. These people need

little more than careful observation and rest for one or two days.[10] Their only post-drowning complication is likely to be a pulmonary "submersion syndrome" characterized by mild fever, leukocytosis and transient pulmonary infiltrates.[15,16,17]

The second group of drowning victims, the Moderately Severe Group, would have been under water for a slightly longer period of time, perhaps three-and-one-half to five minutes. Their resuscitation was delayed but effective. Their vital signs, although perhaps normal, tend to be unstable. Their sensorium is not entirely clear. On arrival at the hospital, they show tachycardia, some premature or ectopic beats, hypotension and early signs of shock. There is an increased plasma hemoglobin, hemoglobinuria, and the hematocrit is mildly depressed. The serum sodium is moderately depressed and the serum potassium moderately elevated. The serum proteins show moderately severe dilution. Urine output is normal or slightly diminished.

The treatment of this "moderately severely drowned patient" embodies all of the monitoring of vital signs, electrolyte levels, electrocardiograms, urinary output and x-rays described above, plus therapeutic efforts to restore normal electrolyte patterns and oxygen carrying capacity of the blood.

Depending upon the level to which the serum sodium has been diluted, it may be necessary to replace this ion in the drowned victim. The replacement of sodium is best done with a 5% sodium chloride solution. Isotonic saline solution must not be used since it will never correct the hyponatremia and will further expand the blood volume. The hyperkalemia and hypervolemia may require phlebotomy with the withdrawal of sufficient abnormal blood to allow re-transfusion of normal bank blood or packed red blood cells. Calcium should be considered if symptoms warrant.

The third group of drowned victims, the Severely Drowned Group, would have been under water for more than four to five minutes. Their resuscitation was difficult and often incomplete. Their vital signs indicate shock, cardiac failure and cardiac arrhythmia. Their sensorium is markedly obtunded. Laboratory studies show marked hemo-dilution with hemoglobinemia and anemia. Urine output is often greatly diminished.

The treatment of this "severely drowned group" of patients presents many problems, most of which are related to the tremendous hemodilution. Their therapy would seem to logically revolve around dealing directly with this hemodilution. The most direct approach would be to replace the abnormal blood that has been diluted by drowning fluid with donor blood that is more nearly normal in composition. This implies an "exchange transfusion" technique. This technique is not a new one. It has been of proven value in many of the poisoning states and has had wide application among pediatricians in the treatment of erythroblastosis.

In applying the concept to the drowned patient, it would seem most logical to predicate the amount of blood to be withdrawn initially upon the clinical condition of the patient. The more severe the drowning accident seems to be (i.e., the higher the plasma hemoglobin; the lower the hematocrit; the more disarranged the electrolyte pattern) the more blood that should be initially withdrawn. Blood used in the donor transfusion should be as fresh as possible to obviate the difficulties with potassium inherent in older banked blood. Depending entirely upon clinical judgment, and monitored constantly by venous pressure, it would seem that for every three or four pints of blood withdrawn from the patient, approximately two pints of bank blood should be replaced. The objective of such an exchange transfusion, depending upon the severity of the drowning accident, should be a replacement of approximately 80% of the total blood volume.

It is obviously quite important to have some guide lines so as not to overtransfuse the patient on the one hand or deplete the blood volume too far on the other hand. It is, therefore, wise to insert a venous catheter into a major vein and constantly monitor the venous pressure. A drop in venous pressure would indicate the need for transfusion, while a rise would indicate the need for further blood withdrawal. The duration of the exchange transfusion can be accurately determined by the *plasma* hemoglobin level. When this level drops below approximately 75mgs. %, an adequate exchange has been achieved.

Summary

Because drowning is a frequent cause of morbidity and mortality it merits more attention in the medical literature than it has been given. The majority of recent experimental efforts have been directed toward methods of artificial resus-

citation to the exclusion of the more definitive aspects of medical care. This communication reviews the physical and biochemical events of drowning, demonstrating the tremendous hemodilution, hemolysis and electrolyte disarray. A preliminary hypothesis for treatment is proposed using a central *concept*, an exchange transfusion technique. This technique is combined with extensive supportive care of the drowned victim.

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THE MANAGEMENT OF PATIENTS WITH ANGINA AND INFARCTION OF THE HEART



by
William Dock, M.D.

BY the end of the nineteenth century, professors of medicine and pathology knew myocardial infarction, in its catastrophic form, as well as we do today, but only after portable electrocardiographs were introduced around 1930, did practitioners in North America recognize and treat as heart disease the mild attacks which had either been called "acute indigestion" or angina pectoris. For 15 years 6 weeks bed rest, 6 months away from work was the treatment, based on electrocardiographic diagnosis. Many cases without coronary disease were so treated – pulmonary embolism and acute pericarditis heading the list.

Then came the dicoumarol era, with some relaxation of bed rest, and the swing to heparin after 1955. Today there is no therapy widely accepted by the experts. Some of the leading clinics and cardiologists reject anticoagulant

Presented at the Seventh Annual Cardiac Symposium of the Arizona Heart Association January 24, 1964 at the Biltmore Hotel, Phoenix, Arizona.
Chief, Medical Service, Veterans Administration Hospital, Brooklyn, New York.

Despite intensive investigation, the etiology of coronary disease remains obscure and the management controversial. The author briefly summarizes the various forms of treatment advocated since the 19th Century. Controlled physical activity and diet are considered by him as the most important.

therapy for all cases; many doctors use it only for cases they consider bad risks, which may be 10 to 40% of those diagnosed coronary disease. The zone of erroneous diagnoses has been narrowed by serum enzyme studies, and the strict bed rest in many clinics is limited to patients with shock, sinus tachycardia, or arrhythmias requiring monitoring or pacemakers. Some doctors use routine quinidine, but fewer than 30 years ago; some use salt restriction routinely, and some begin the prudent, low animal fat diet at once. But uniformity in treatment is gone, and each doctor must decide how to treat each case, and how he would like to be treated when his turn comes, as it does to nearly one out of three doctors, lawyers and white-collar workers — as well as to soldiers and sailors, who seem to be attacked even earlier in life.

I can give you only one doctor's view of the problem, but it is that of a doctor who first learned of the electrocardiographic signs 45 years ago, and who was a pupil of Herrick, Wilson and Levine more than 40 years ago. Prior to 1925, 80% of the cases went back to work as soon as they got over "acute indigestion" while 20% died within a few days, sometimes correctly diagnosed but more, like President Harding in 1922, put down as "acute cholecystitis and pneumonia." Thus most doctors, and most heart specialists, dismissed with other diagnoses the cases of coronary disease, whether they died or recovered, and only those who saw many autopsies realized what this disease really was, prior to wide-spread use of portable electrocardiographs.

In my own practice, the 6 weeks bed rest was never used, but from 1946 to 1950 dicoumarol was used routinely, and in 1956 to 1958 various combinations of heparin and coumadin were used. So my personal experience covers a long and varied spectrum of management.

One approach to management is to treat this disorder as running a course uninfluenced by all factors except hereditary predisposition. Corvisart took this attitude when he chose a quotation from Virgil to open his book on heart disease: "Fixed in his side the fatal shaft." Many famous physicians, John Hunter, James MacKenzie and Thomas Lewis among them, worked hard and lived for two decades after onset of coronary disease, although they did not change their diets, or use any our modern drugs to alter clotting or plasma lipid. Perhaps we should follow their examples.

Another approach is to blame this disease on stress, to retire from active life and live on tranquilizers, possibly adding estrogens to moderate the libido. Or, if one is a disciple of Paracelsus and the drug detail men, one may rely entirely

on drugs to dilate arteries, delay clotting, lower plasma lipids, and activate lipases. Intrepid men will seek surgeons, to provide collateral vessels, clean out obstructions, and possibly to remove enough jejunum to protect them from the metabolic consequences of over-cating. But for a disciple of Hippocrates, the management would be a life of vigorous activity, mental and physical, a diet free of rich foods, moderation in use of alcohol – the regime favored by William Osler for the many doctors with angina whom he saw at Hopkins before and after his 1896 treatise on coronary disease.

The Hippocratic or Oslerian approach seems best to me. This involves confinement to quarters (not to bed) for the first two or three weeks after onset of avcrage infarcts (no shock or tachycardia, a day or two of pain) or of angina of effort. Prompt use of narcotic and reassurance is of great value in controlling the panic which seizes many on realizing they have coronary disease, while ordering complete bed rest for 6 weeks merely adds to fear and stress, and may double the death rate. Shock, arrhythmia or heart failure require prompt treatment, and gradual rehabilitation over many weeks. Salt restriction is obligatory for these cases, and desirable for all people with hypertension or heart disease. The intake of calories, and especially of saturated fat (egg yolk, butter fat or cream, stall-fed beef and pork) should be restricted, and use of vegetable oil to replace sugar and starch, as well as animal fat, should be encouraged. Exercise alone can lead to a good collateral, but must be increased gradually and for several months exercise after meals must be avoided. The object of management is a normal life and this can be achieved in most patients.

While I do not use coumadin or heparin any more, I realize many doctors have confidence in them and I hesitate to discourage use of therapy in which patients have great faith. If used, they should be given in full doses, not as placebos in incffective amounts. I prefer to see what two months of diet do before starting drugs like nicotinic acid, thyroid or its analogs, or newer agents, such as chlorphenylisobutyrate. These are really effective in lowering plasma cholesterol and triglyceride, but vary greatly in different patients, so that dosage and choice of the best drug or combination requires careful study. Nicotinic acid has its own variety of side-effects, some harmless but surprising, but is the cheapest effective agent. Dextrothyroxin and chlorphenynlisobutyrate are not available by prescription, but the latter has the fewest side effect and may prove invaluable. Other agents have been proved potent, but have had no extensive clinical trial. Whether lowering plasma lipid, by diet or drugs, will really reduce the risk of progress of disease remains to be proved. But wherever populations have low levels of cholesterol they enjoy low incidence and late onset of coronary and thromboembolic diseases, so that this approach is rational and certainly harmless. Any patient who accepts cheerfully a regimen in which he and his doctor believe will live more free of dread and this, in itself, improves prognosis of a disease to whose evolution frustration, fear and stress seem to contribute greatly.

In angina, a clinical syndrome which has been related with coronary disease for nearly two centuries, one has ample occasion to observe how stress and frustration, high salt, high fat, or high alcohol intake aggravate the symptoms or reduce the physical activity needed to evoke pain. In some patients modest daily doses of phenobarital greatly improvc the condition, in others and especially those with decubital angina sodium depletion by diet or drugs is very effective. We have learned that acute left ventricular failure occurs in every attack, but digitalis only occasionally is of benefit. We have learned that nitrites act mainly by reducing left ventricular load, not by increasing flow in ischemic areas, although they do increase flow in normal heart or areas supplied by patent arteries. We know that hyperlipemia due to fat or alcohol ingestion does impair oxygen exchange and thus aggravate this disorder. But all our new knowledge merely explains why it was that Osler obtained good results by prescribing "steady quiet exercise" and stating that "Diet is the central point in treatment – death lies in the pot."

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GLOBAL GYNECOLOGISTS PROGRAM

by
G. Arthur Janssen, M.D.

SOUTH VIET NAM
August, 1963

Every physician should experience the feeling of doing a difficult job in an area where his services are desperately needed. It re-establishes the basic tenets of being a doctor. MEDICO offers physicians this opportunity.

This author has experienced this refreshing sensation working with the physicians and people of South Viet Nam.

MEDICO has an excellent program because it utilizes all doctors in situations where they can function at their maximum advantage to a particular country's needs. This is the type of people-to-people relationship that builds good international relations.

THIS past summer I had the privilege of serving with Medico in Saigon, South Viet Nam as a visiting specialist. I was the sixth in a series of American Board Gynecologists to serve for one month in this capacity. The program of which I was a part was organized by Dr. TeLinde of John Hopkins University in the spring of 1963.

Medico is the Medical International Cooperative Organization organized in 1958 by Dr. Peter Comanduras and the late Dr. Tom Dooley. It was established as a non-governmental, non-sectarian, non-profit organization with the purpose of providing clinical, medical and surgical services to the newly emerging countries where such services were most urgently needed.

Doctor Janssen has offices at 5600 East Fifth Street, Tucson, Arizona.

Formerly Medico and the organization of Care had been cooperatively engaged in health and social service efforts in many countries. In March 1962 Care and Medico announced the merger of the two organizations whereby Medico, "a service of Care," will continue to operate and expand its overseas programs with Care handling the administrative and logistical aspects of the program. In this manner administrative costs are reduced, duplicated facilities eliminated and the efforts and talents of the physicians and nurses of Medico are directed solely toward providing the medical service for which they are trained.

Most of Medico's programs abroad originate in a request from the government with the government's approval. The establishment of the project is usually preceded by a survey to investigate the medical needs of the country and to

determine the type of program which will meet those needs. When the program is to be established in a hospital or clinic, the initial arrangement with the host government includes a clear understanding that the Medico program will continue only for the length of time required to train local personnel to assume responsibility. Under this training policy the host government agrees to provide counterpart personnel to work with the Medico doctors, nurses and technicians.

Under the aegis of Medico and with the cooperation of the American College of Obstetricians and Gynecologists a program for visiting specialists in the field of gynecology was organized by Dr. TeLinde who is the liaison officer between Medico and the American College of Obstetricians and Gynecologists. This new program is known as Global Gynecologists.

As an example of a parallel situation, there is at present a very effective overseas program known as the Orthopedics Overseas Division of Medico. There are now four stations where the Orthopedic surgeons spend one month of their time at their own expense, operating and teaching their speciality. The wives of the Orthopedic specialists are encouraged to accompany their husbands and in most cases assist them in some form of activity such as an administrative assistant, nurse, or technologist.

Our program of Global Gynecologists was patterned along these same lines and it was Dr. TeLinde who visited Saigon during the month of March 1963 as the first consulting gynecologist to South Viet Nam. With the cooperation of Dr. Tran Din De, the Min ister of Health and former resident of John Hopkins University in Gynecology, Dr. TeLinde organized an effective and worthwhile consulting gynecologist program for the physicians in Saigon.

In lieu of taking my wife who stayed home to care for our other three children, I took my 17 year old son. He had been trained as a surgical scrub technician in Tucson Medical Center Hospital and served effectively in that same capacity overseas. He too was given a sincere, warm welcome by the personnel in the hospitals and he seemed to enjoy a special, friendly relationship with the younger interns on the staff. He had the oppotrunity to visit in their homes, ride "piggy-back" on the rear of one of the intern's motor scooter, go to the cinema with them, etc. I am certain that this profoundly interesting and enlightening experience in Viet Nam will help to broaden his outlook and perhaps serve as a catalyst for a greater purpose in his life regardless of his chosen occupation or profession.

It is estimated that there are about 750 doctors in South Viet Nam. Slightly over 400 of these are in the Army. Immediately after graduation the doctors are inducted into the Army. The older men and women physicians are left to take care of the civilian population. Two of the twelve million people in South Viet Nam live in Saigon. The remaining 10 million live in the few small cities, but principally in the small villages from which they go into the rice patties and fields to work. The civilian doctors tend to congregate in Saigon, leaving the small cities and villages with almost no medical attention. In addition to the general shortage of doctors there is, according to the Minister of Health, a need for highly trained specialists in every field. In the capital of each province there is a small, crude and poorly staffed hospital. Four of these are staffed by surgical teams sent out from the United States by the State Department. At present our program is confined to the two large maternity hospitals in Saigon; however, in the future it is hoped that there may be some type of consulting program with the smaller outlying province hospitals which are urgently in need of trained gynecological surgeons.

The five men who preceded me in Saigon were astonished as I was by the vast amount of pathological material. Every conceivable gynecologic condition was encountered! Vaginal and uterine prolapse in varying degrees and in great quantities were especially prevalent. Vesico vaginal fistulae and other types of fistulae were seen along with complete perineal lacerations, abdominal tumors, both benign and malignant, of the uterus and adnexae, chorioepitheliomas, and others too numerous to mention.

The large number of ectopic pregnancies, Cesarean Sections and less complicated pelvic surgery was performed by the attending and resident staff of the hospitals. As the consulting specialist, I performed the more difficult operative cases, but wherever possible the Vietnamese staff physician or resident was guided through the case with careful supervision and instruction. Most of these men have had no training comparable with that of a first class residency in

the United States. On the other hand, they seem bright and anxious to learn. In addition to gynecologic surgery ward teaching of the residents and staff physicians was carried out six days a week. However, by the latter part of August little student teaching was accomplished because of the extreme unrest within Saigon. All of the schools and universities closed.

The surgery was performed at the Tu Du Hospital three days a week and Hung Vuong Hospital the alternate three days of the week. Each of these two government hospitals were used strictly for obstetrics and gynecology. The building were old, yellow, stucco covered, tile roofed, three story structures built about 1900 by the French. Very few improvements have been made in these hospitals during the past sixty years. Each of the operating rooms did have a small window type air conditioning unit; otherwise, no cooling system was used throughout the hospitals other than an occasional large, blade type, ceiling hung, rotary fan.

The operative room technic, which is so different from that of America, is an education in itself. Here, improvements in asepsis and procedures were gradually effected. But, recognizing that theirs has been a surprisingly efficient system for years, any remarkable change would have to take place gradually and tactfully. The instruments were of an old French type, limited in variety and number, and of *poor* quality. Catgut sutures were of fair quality, but very limited in the amount and type. Virtually no chromic catgut was available. The gloves were poor, and many were patched. Often times the patches would peel off of the gloves and into the wound during the operative procedure. The gowns were of an old French style, somewhat flimsy for the most part, and consisted of a button type sleeve with an attached mask extending up from the front of the neck to be tied up over the nose and face. Because the gowns buttoned at the wrist, they were constructed like an ordinary dress shirt. Consequently a large portion of the forearm became exposed after the gown was in place, even though gloves had been put on and stretched up over the wrist as far as possible.

The anesthesia, performed solely by nurse anesthestists, was quite good and was handled by a closed system of ether inhalation. The anesthetists were conservative, observant and most cooperative. Some of them had been trained in Canada and France. During the operative procedure blood was available in quantities of 250 c.c. units, but were used quite sparingly. Thus, it was not considered advisable to attempt extensive or radical surgery under these circumstances. The post-operative care on the wards was supervised by a resident staff physician and the nurse.

Generally speaking the volume of patients was tremendous. At each of the two maternity hospitals where the work was done there were approximately 15,000 deliveries per year. The great majority of these deliveries were done by well trained mid-wives with the attending staff responsible for the complicated cases. The Cesarean Section rate approximated twelve per cent which by American standards is high. However, one must realize that these hospitals act as receptacles for these cases with forseeable problems, repeat Cesarean Sections, abruptio placentas, placenta previas, dystocia due to mal-positions, and other complicated cases. Some patients, many of whom are from the provinces, have no prenatal care and arrive as obstetric emergencies.

Most of the patients resided in large thirty to forty bed wards and some were kept in the halls if a lack of ward space existed. Oftentimes two small cots would be pushed together to allow three persons to lie lengthwise along the beds while the fourth patient would lie crossways along the end of the bed. Frequently two patients would share one small army cot which had wooden slats for springs and only a grass mat beneath them as a mattress. The patients gowns consisted of old flour sacks sewn together. Yet, in spite of these extreme conditions the patients were uncomplaining, calmly accepting whatever treatment or service was given them, and almost stoic about the entire situation. For most of them this meant a well needed respite from very heavy house work, strenuous labor, and having more children.

Cancer detection is in its infancy, principally because of the lack of education, failure of communication with the masses, plus the very limited number of pathologists, laboratory facilities, and absence of screening technicians. In fact, to the best of my knowledge there are only three qualified pathologists in the entire city of Saigon. Consequently there is a long delay in the return of all pathologic reports and no frozen sections

are available. More instruments and supplies provided by Medico-Care, including those which had been left by preceding doctors, served as a good working nucleus and it was felt that this neophite program was progressing very well. Realizing the many obstacles facing them, this program was enuthusiastically received by the Vietnamese doctors and they were greatly encouraged by the fact that our roster called for more doctors to visit Saigon month after month through the year 1964. It was most gratifying to observe the appreciation of the Vietnamese patients and their families. They were so very greatful for the concern given them that at times their response was almost prayerful.

It was on the morning of the 21st of August while riding to the hospital in our Jeep truck that we were aware of a tense "new situation." A great number of armed soldiers lined the streets and many guards surrounded the parks and public buildings. The hospital personnel and doctors filled us in on the details of the government police raid at the Xa Loi pagoda on the night just passed. By mid-day the city was under martial law. For the next few days no mail came in or out; all commercial aircraft were prohibited from landing and/or taking off; and a very strict curfew was enforced through the 25th of August. During the next few days only a portion of the scheduled aircraft arrived and departed from the Tansunnhut airfield. In the face of the repeated Buddhist and student demonstrations and threatened riots it was considered to be in our best interest, that we leave Saigon and that, at least for now, our program be discontinued.

Needless to add, the doctors in the hospitals were dismayed at our hasty departure and deeply grieved that the program would not be continued. Their loss would be great and we felt a real sympathy for them. During our last few days in the hospitals, the staff would apologize repeatedly to us for "the way things were in their country."

As our plane lifted off of the ground and circled back across this beautiful city and then out over the green and white checker board pattern of rice paddies far below I knew that some day I wanted to return. Return to renew friendships created there in Saigon and to participate once again in this type program. For it is in a program such as this that you know your time and efforts are not wasted. Our assistance, both technical and material, with "no strings attached," results in a common bond of fellowship and sincere international good will.

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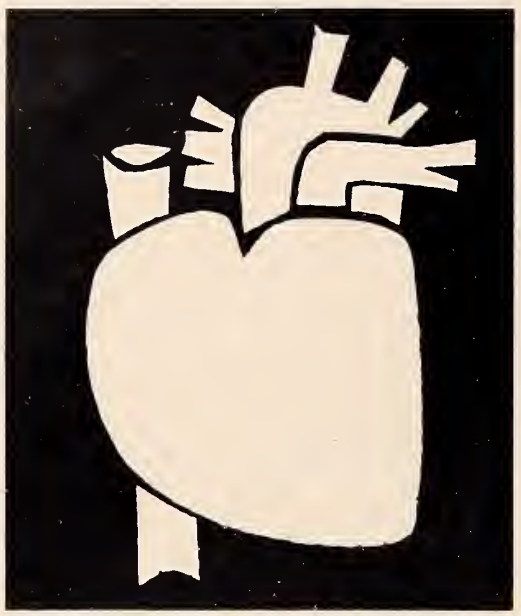


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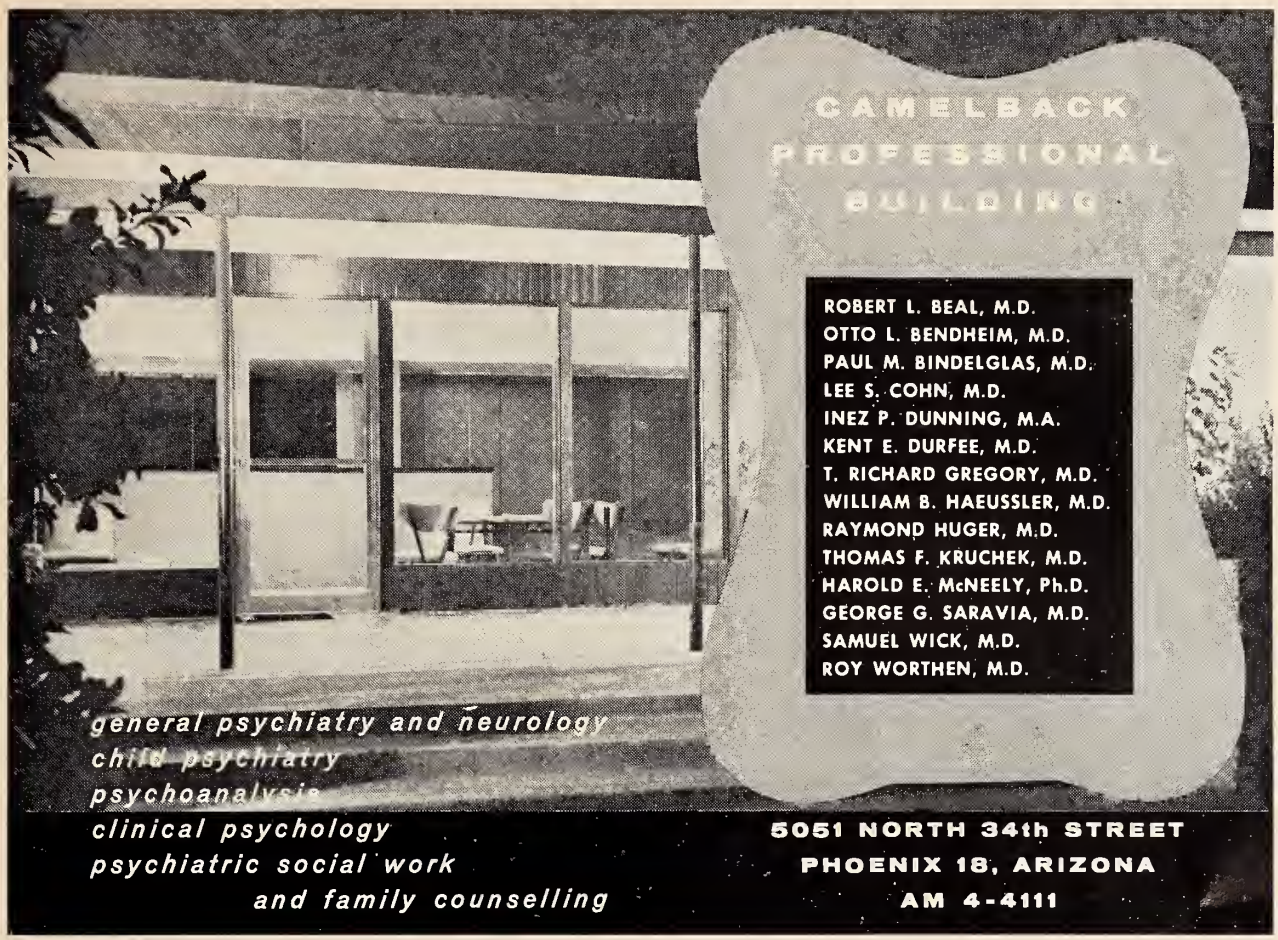
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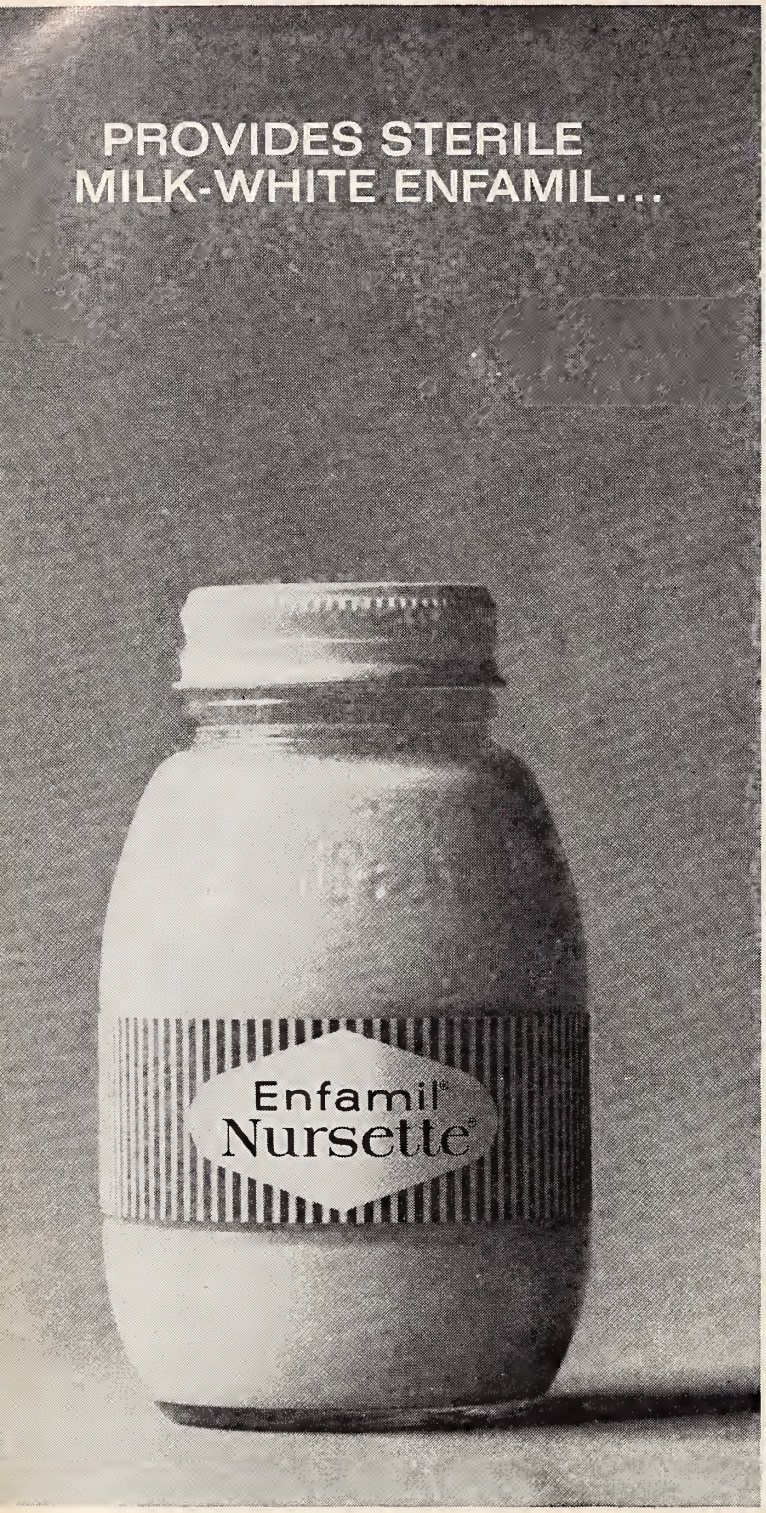
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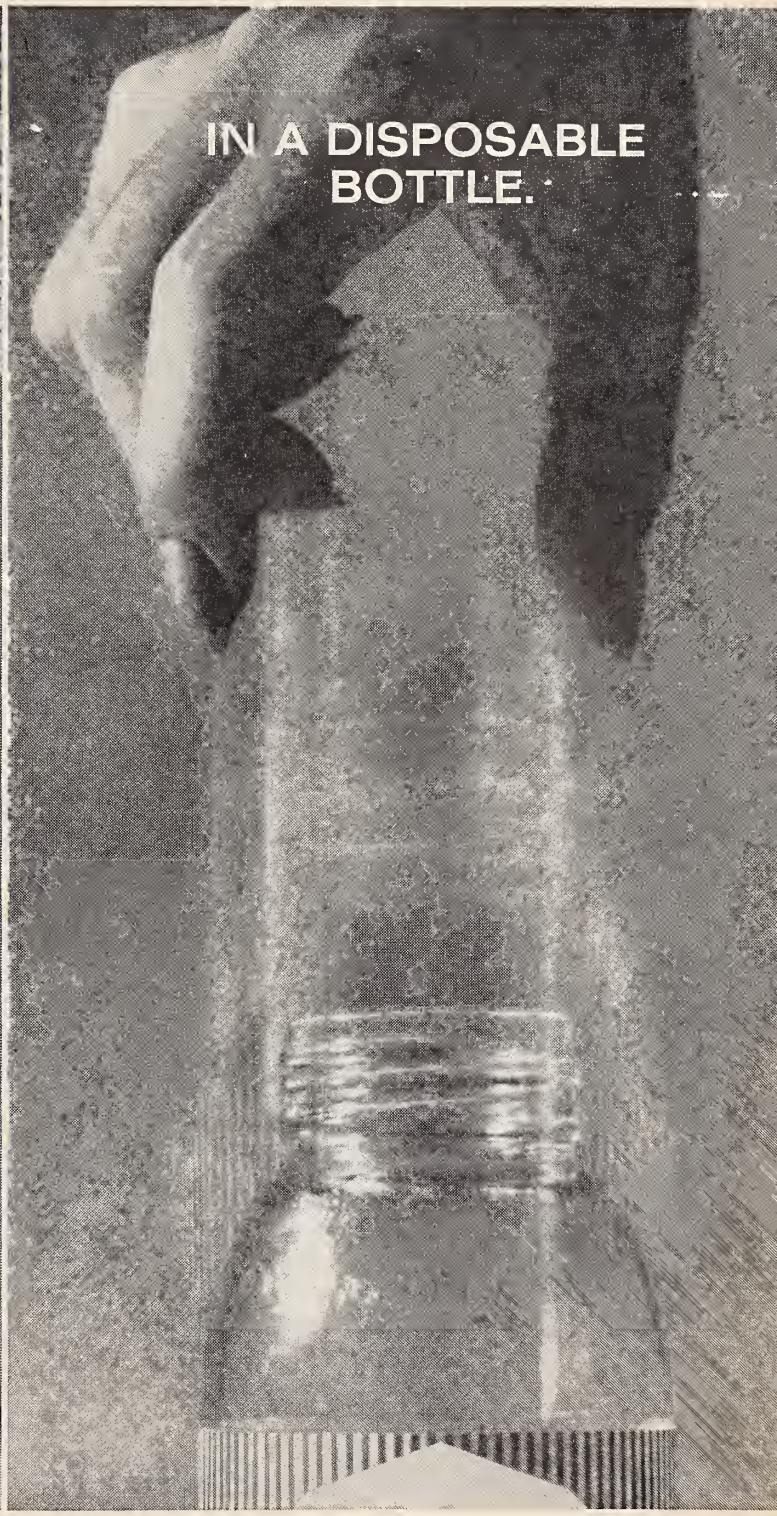




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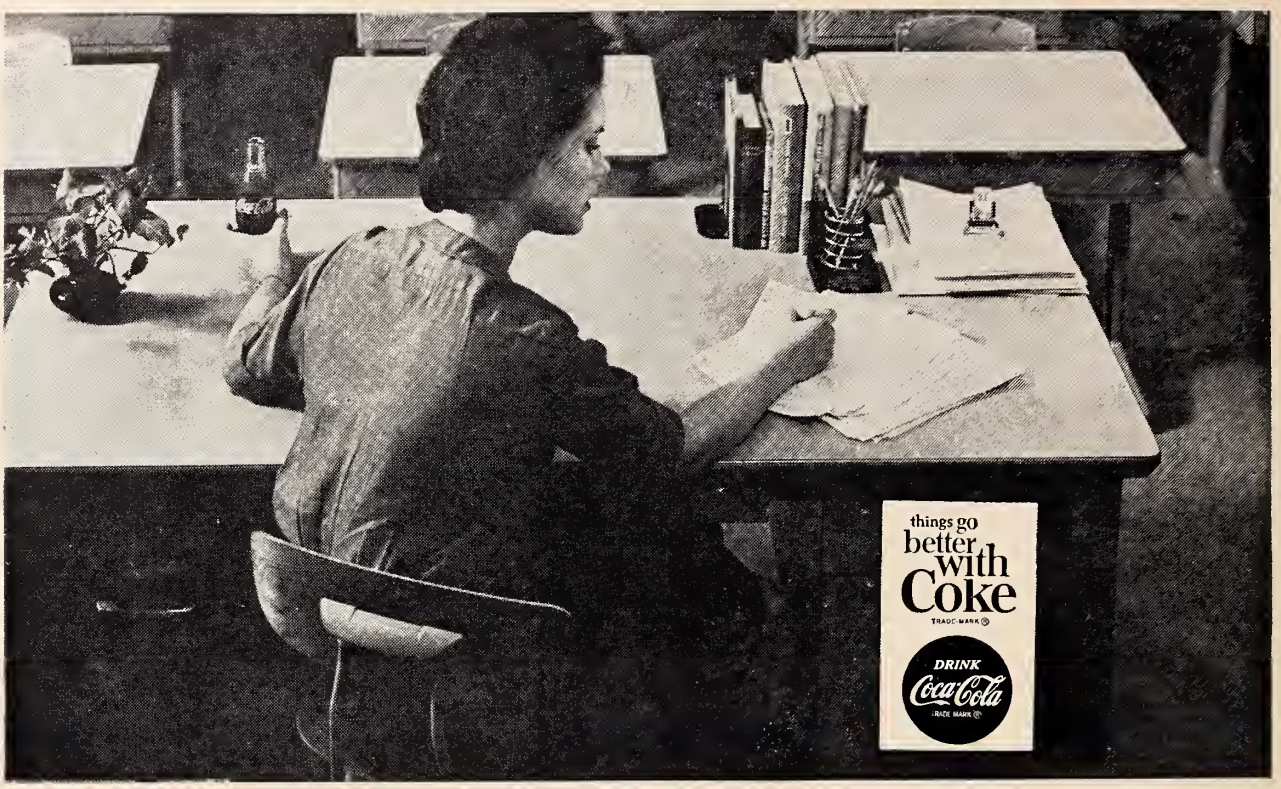
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1. Brown, G.W., Tuholski, J.M., Sauer, I.W., Minsk, L.D., and Rosenstern, L.: J. Pediat. *56*:391, 1960.

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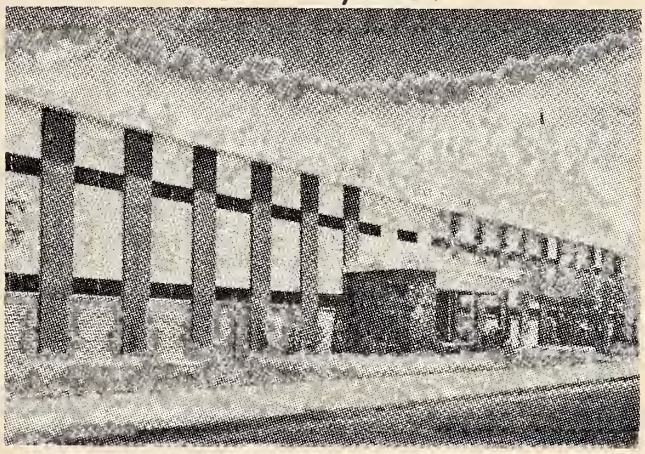
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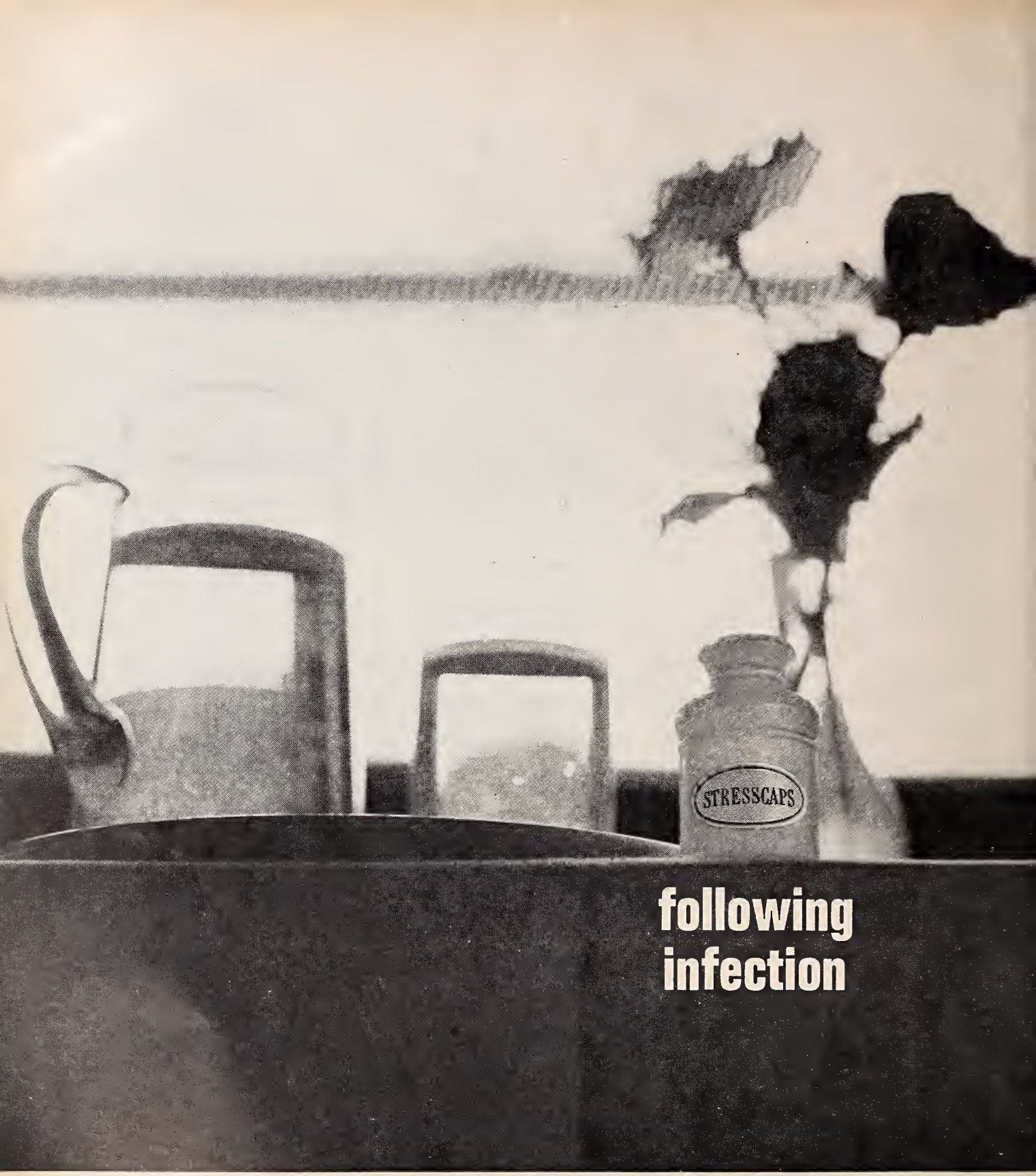
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Dr. Brewer

HISTORY must repeat itself and the pendulums of Man must swing back and forth, because of an innate constancy in human nature, every bit as strong and as inexorable as the natural force of gravity. Surrounding this constancy is a dynamic flux, a matrix of change, which will never allow such pendulums to come to rest, certainly not as long as man remains human and his soul remains restless and his interpersonal relationships remain within the bleakest area of human learning.

One of these pendulums, in the medical field, is swinging back toward the old fashioned purview of the family physician of the total patient, of his illness, of his reaction to his illness, and of the reaction of his family to his illness. True, some patients today have half a dozen physicians, one for each organ system. But this specialization, born of the scientific revolution, has created an aura of cold impersonality and formality largely because physician and patient do not know each other, nor need to know each other.

This has often created confusion, not only of the patient, but even among the members of the medical "team." And has, at times, produced results, which might be interpreted as less than optimum, because empathy and understanding and concern for all that surrounds the purely physical seemed no longer to be necessary for the cure of a precise physical illness.

In this fact lies one of two major bases for the dilemma in which American medicine finds itself today, viz., its socialization: the preeminence of the purely scientific attitude towards disease and the relative value that the vast majority of Americans put on their health. We can write and talk forever, but if a man does not value his health next to God and his family in the great scheme of life — as he should — he will consciously or unconsciously reject medicine as Americans know it, and willingly accept the mere kernel of treatment that socialization will provide.

But the converse of the first basis, the wholistic approach to the patient, can reduce or abate the impact of the second. And, what is even more important, this concept really represents the prime motivation in the making of all physicians. It is only the immensity of the body of scientific medical knowledge, that he must absorb, and the crushing pressures in his daily medical life that slowly dim the primordial urgings that started him on his path into the medical world and tend to make him view the patient as a simple disease entity. Now the pendulum is pressing back harder and harder, focussing a light on the total patient and he must seek the time and energy to see that patient as he really is.

The AMA recognizing these trends and realizing that physical, mental, spiritual and social factors combine, in varying proportions to be sure, in every illness, established its Department of Religion and Medicine in 1961. Paul B. McCleave, D.D., became its first director. To give him counsel, an advisory committee chairmaned by Milford Rouse, M.D., and composed of 10 physicians and 10 clergymen was formed. In developing guidelines, Dr. McCleave consulted with national leaders among all major religious faiths in the U.S. and with leading physicians in some nine states. He also went to the American Hospital Association, the Academy of Religion and Mental Health, the American Protestant Hospital Chaplains' Association and the Catholic Physicians' Guild.

Out of all this grew pilot programs in some 20 county medical societies. These programs were evaluated a year later, in 1962, and formed the basis for program ideas and suggestions for all county medical societies. We are pleased that Arizona was among the first states chosen for this study and are proud that some of the things started in our state have been selected for use at the national level. Delbert Secrist, M.D., has chaired our subcommittee on religion and medicine, which works within the larger framework of the professional committee.

American medicine today is striving to make communication between the physicians and the clergyman more open and involved, for there

are times in particular circumstances where the clergyman can be of assistance to us as physicians as we care for our patients. I encourage the activity of our committee and hope our local societies will follow many of its suggestions and recommendations.

Religion never really left medicine. Arising from a common origin the two professions have always closely parallelled each other, even in their separate emphases on the physical and the spiritual. But scientific advances and the resultant specialization in medicine — even in religion — have produced impulses and forces tending t oseparate the two. Yet it is these very same factors which have reversed the pendulum and made necessary an intersection of the two disciplines, for they are over-balanced by the humanness in human nature itself.

Problems have arisen out of the practical application of science which require value judgments of human life. For example, the human "vegetable." With oxygen for respiration, a pacemaker for circulation and the artificial kidney for excretion, a person can be kept alive — by definition — indefinitely. Even infection can no longer end it all, what with a new antibiotic ever on the drug horizon. When does the physician give up?

Or what about the most grotesque birth anomalies, the anencephalic, for example? How hard does one try? Any physician can add examples **ad infinitum** from his own experience. So Dr. McCleave asks, "Is it possible that we might thwart God's will by maintaining an earthly existence for this child as compared to the wonders of eternity?" I for one am anxious for anything that religion has to offer toward solving such problems.

And I am more than happy to have the pastor along in the presence of death or inevitable death from any cause. For it is the family, not the patient, which suffers most in this situation. This was starkly brought home to me one dark night with the sudden and unexpected death of the husband of an atheist. I was alone and lonely in that situation. The events that followed were too great for my mere mortal brain fully to comprehend — and I am confused by theology — but today a devout community leader is giving her energy and her substance to the world she lives in — and as a churchwoman!

Chronic illness, physical or psychosomatic, can and often does come into the overlapping domains of medicine and religion. As a matter of fact, a pendulum is swinging here in the treatment of mental illness. It was in the early 1800's that Phillippe Pinel evolved his revolutionary "moral treatment," which was simply a program of planned rehabilitation in a positively oriented sympathetic, social environment emphasizing the patient's dignity and self respect. And now after 150 years, we have the Worcester State Hospital and the Hartford Retreat improving their recovery rates by compassion rather than restraint and custody! Time marches on — around in circles — and the pendulums swing.

I so well remember a vaginal discharge that was proven to be the result of the emotional stresses of a mixed marriage and not due to Trichomonas vaginalis or Monilia albicans — and some nocturnal fits that were produced by a functioning pancreatic adenoma and not dyspareunia. These confronted a young, scientifically trained resident trying to apply his science to that something in human nature that makes us human. He had to learn there is no sharp separation of black and white, science and art, medicine and religion, physical and emotional.

A recent study has shown that 46% of mentally ill patients first consult their minister. So long as man tries to understand the things he cannot see and believes in things he cannot comprehend (cf. Hebrews 11:1) he will be a religious being. Religion therefore is a living element in the world culture of today — certainly not an archeological artefact. And regardless of the patient's religion, that religion has supplied the answers to many of the great questions aroused in him by the mystery of life and has modified his actions in their relation to his life and has provided a measure of relief in his adversities. Regardless of the superficiality of his religion and his faith, both come stronger to the fore in times of great danger and stress and in serious illness.

As we said last May, regardless of the physician's personal religious conviction, he must treat men of all faiths and in relation to their faiths and with recognition that that faith is a potent factor in the total being and total health of the patient. There cannot be a stomach or an appendix or a coronary or a psychoneurotic in room 304. There is a patient — a man or a

woman or a child — a Mr. Jones, with all the complexities of the organic and functional interrelationships of his disease and with all the dignity of his individual self in 304.

He, who would do his best in medicine, will recognize and respect this great principle and include it in his approach to his patient's problems. His success requires the use of all his abilities as a physician, his knowledge, and his skill, his personality, his maturity, and his humility before the greatest privilege, the laying of his hands upon another, of guiding another's health and happiness and future, of influencing the lives of that one's family. Success in medicine requires some understanding of the patient's body, his mind and spirit, the total person, and this often requires the help of the pastor.

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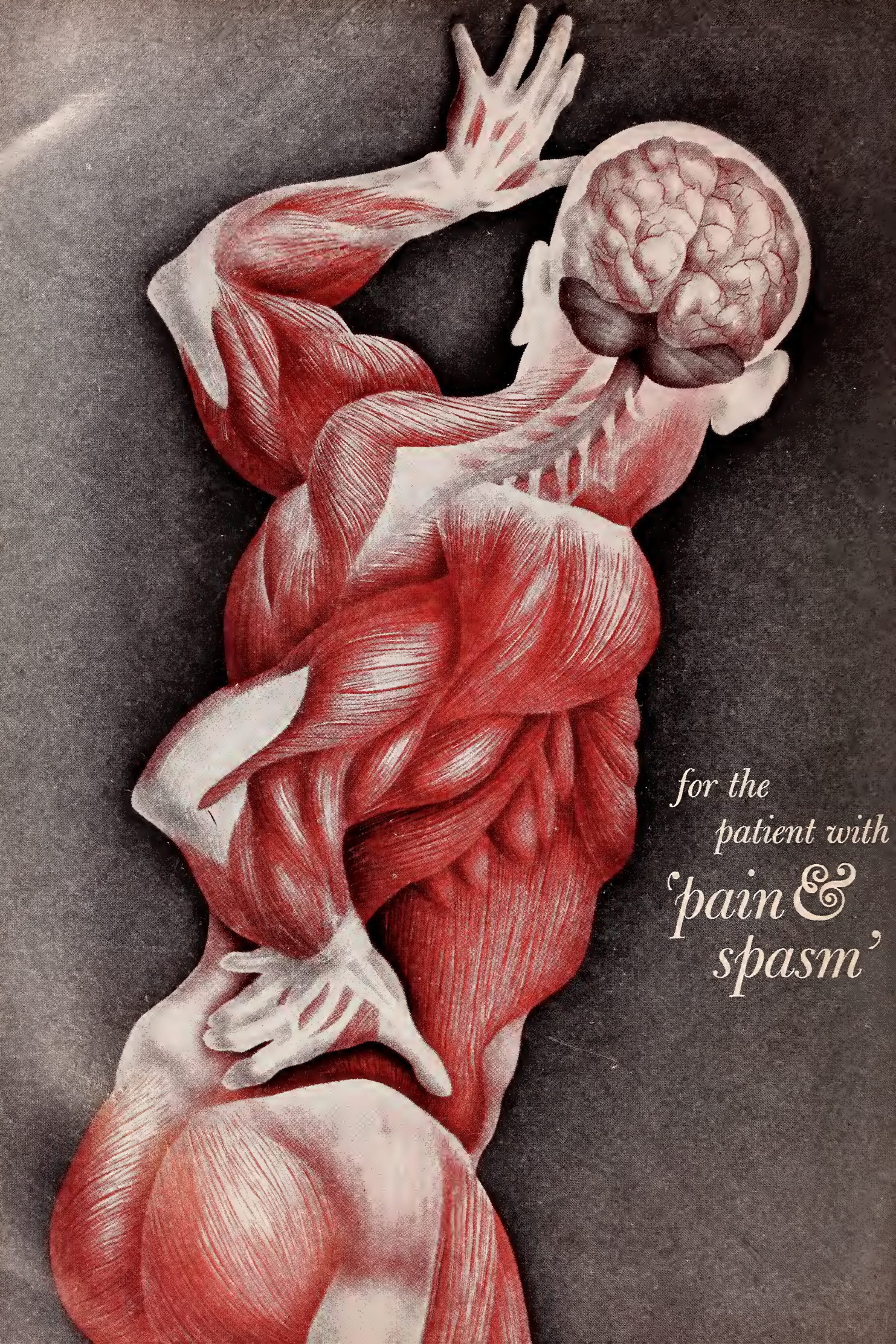
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INVOLVEMENT

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Editor

AT the recent Regional Conference of State Medical Journals, panel discussions were held on topics ranging from the business side of the journal to typography, editorial style and layout. One subject of discussion was the Intangible Benefits of State Journal Publications, and it was here that the concept of "involvement" was emphasized.

The journal of a state medical society offers a means for the members at large to become involved in the scientific, philosophical and socio-economic policies of the state society. The journal provides a forum in which members may express opinions, objections and suggestions. Its news pages can mirror items of statewide medical interest and its editorial pages can stimulate thoughtful comments by society members.

By supplying an agency of involvement for state members the journal serves to inform physicians about colleagues and makes the society a more cohesive body. Participation in Arizona medical affairs is not the monopoly of a few. Through the medium of "Arizona Medicine" we may all both profit and serve by becoming involved.

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2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

3. Although the Editors try to catch inaccuracies, the ultimate responsibility is the author's.

4. Articles are accepted for publication only if they are contributed exclusively to this Journal. Ordinarily, contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.

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The Doctor's Visit, Jan Steen 1626-1679, Mauritshuis, The Hague

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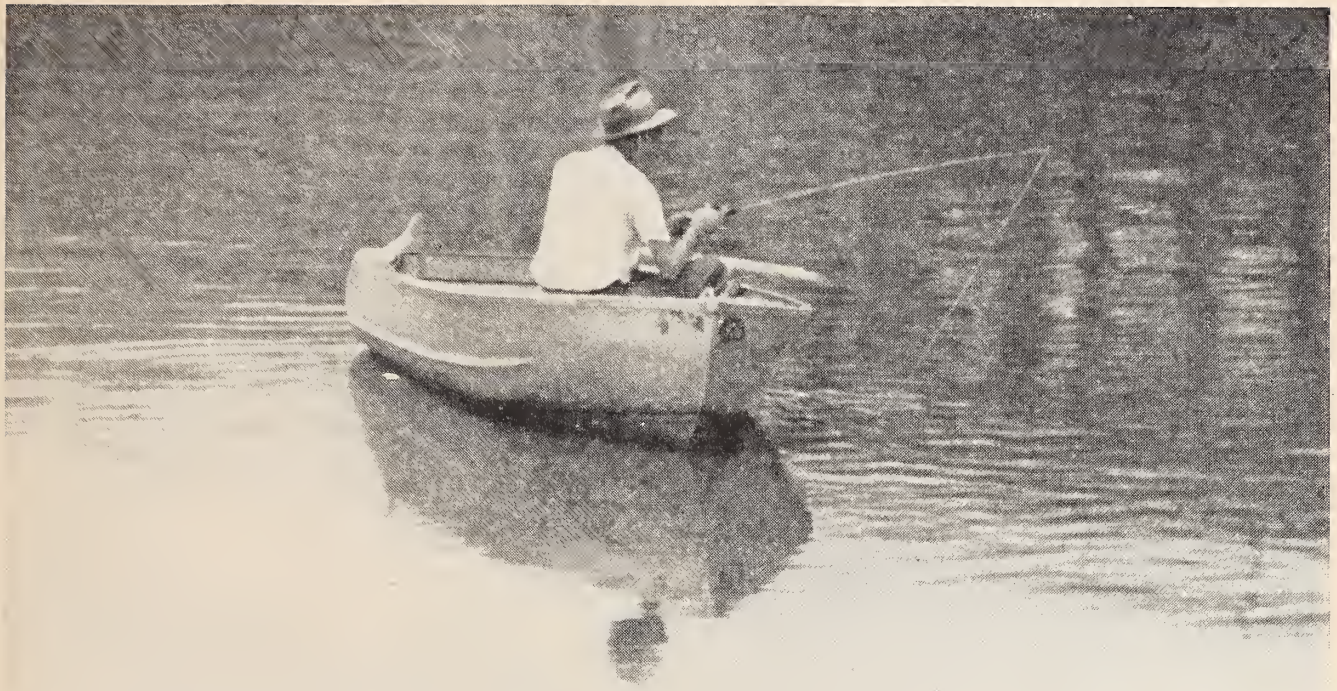
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1. Welch, C. E., Diverticula of the Alimentary Tract, in Conn, H. (editor): Current Therapy—1961, Philadelphia, W. B. Saunders Company, 1961, pp. 224-225.

SEARLE

Research in the Service of Medicine



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"The average practitioner is quite capable of handling the vast majority of ex-institutionalized patients by regulation of medication, reassurance, manipulation of the environment where necessary, and . . . other technics." Kline, N.S.: Postgrad. Med. 27:620 (May) 1960.

The family physician must often assume responsibility for the discharged mental patient. Thorazine (chlorpromazine, SK&F) can be a valuable adjunct to the continuing care of this patient, because it helps prevent relapses by insulating him from the impact of stressful experiences. For successful rehabilitation and prevention of rehospitalization, however, the former mental patient—and often his family—also needs the guidance and counsel of his physician.

Many physicians are surprised by the high doses of Thorazine (chlorpromazine, SK&F) used in patients released to their care from mental hospitals. This surprise may be expressed by a drastic reduction in dosage "to play it safe"—with serious consequences for the patient.

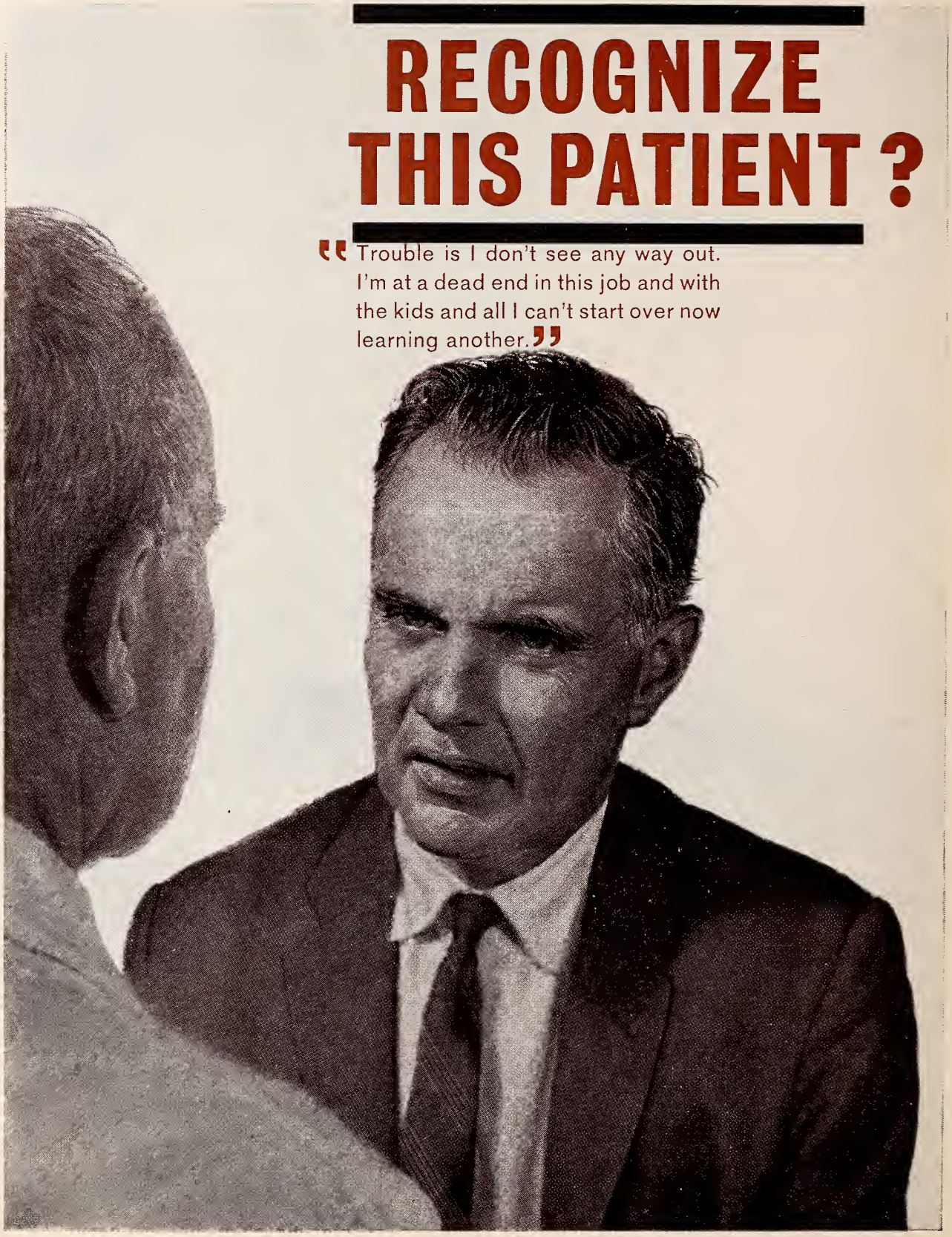
The successful maintenance of former mental patients requires adequate, often "high" dosage, and often for prolonged periods of time. Fortunately, these dosages do not mean greater risks for the patient. On the contrary, there is much less risk of serious side effects once a patient has become gradually accustomed to Thorazine (chlorpromazine, SK&F)—*regardless of dosage*—over a period of a few months. Continuing therapy is almost always well tolerated, and is essential to most patients' continued well-being.

Brief Summary: Thorazine (chlorpromazine, SK&F) has been successfully used for 10 years in the treatment of mental and emotional disturbances, and has proven highly effective in the maintenance therapy of former hospitalized mental patients. *Principal side effects:* The most frequently encountered side effect is transitory drowsiness. Other occasional side effects include: dry mouth, nasal congestion, constipation, miosis, dermatological reactions, photosensitivity, jaundice, hypotension, increased appetite and weight; very rarely, mydriasis, agranulocytosis, extrapyramidal symptoms. *Contraindications:* Comatose states or in the presence of excessive amounts of C.N.S. depressants.

For complete prescribing information, please see *PDR* or available literature.

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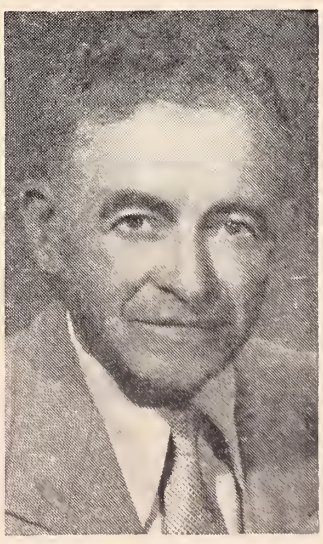
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DISASTER MEDICAL CARE IN CIVILIAN HOSPITALS PART V



CARL W. WALDRON, M.D., D.D.S., F.A.C.S.

TO the U.S. Public Health Service of the Department of Health, Education and Welfare has been assigned the overall responsibility of Health Mobilization. A recent (1964) U.S.P.H.S. brochure on Community Health Manpower Planning states "Predisaster preparations to ensure the availability and efficient utilization of health manpower in disasters are vital to the success of a community's emergency planning." It becomes part of the Civil Defense and Disaster plan of the community, area and/or county.

The U.S.P.H.S. recommends that a physician should be designated the Emergency Health Service (EHS) chief to be aided by an active advisory committee (Health Resources Task Group) made up of representatives from all major health disciplines of the area. A program should be set up to provide for the post-disaster and/or the post attack health needs of the community and nearby region. This includes an estimation of the maximum demand upon the health resources available. The (EHS) chief has the responsibility of directing, co-ordinating and assuming the control of emergency health activities; the designation of key individuals to activate and implement the program. He also assigns emergency missions to operating health organizations, such as hospitals, laboratories, the Red Cross and public health agencies if available. Complete health manpower personnel surveys should be made, kept current and filed. Also complete and detailed inventories of medical, surgical, hospital equipment and supplies including drugs located in the community and likewise filed. A personnel manning table for the operation of a central and/or zone control headquarters should be made. The mission of the Emergency Health Service (EHS) is obviously broad, all inclusive and largely administrative. It does not include the details of the care of casualties.

The actual care of casualties should be under the direction of a physician designated as Chief of Medical Care Services. His duties include setting up manning tables (staffing patterns) or obtaining them from each unit to which an emergency mission has been assigned. He should assist in co-ordinating the medical care plans of hospitals, out-patient centers, mobile units, police, fire and rescue units. When schools or other suitable buildings have been selected as an improvised auxiliary hospital facility or for the expansion of an existing hospital, floor plans should be studied to assure the most effective use of the rooms. In the event a Civil Defense Emergency Hospital (CDEH) which may be renamed Community Disaster Emergency Hospital should become available, the already made building surveys would be most useful.

Two disaster exercises each year are a requirement of the Joint Commission on accreditation of hospitals as part of standards of operation and service necessary to maintain accreditation. Disaster exercises provide an essential test of a hospital's ability to admit and care for large numbers of injured. Repeated year after year, the administrative, professional, and hospital staffs learn a great deal from each actual exercise and subsequent critique. They can in later exercises take steps to correct deficiencies noted

and thus develop an overall efficient plan free from all avoidable confusion in the performance of the test. Representation from other hospitals in the area should be invited to the exercise as much information of a constructive nature is on demonstration. Realism is enhanced by having the simulated casualties made up by moulages to represent a variety of types of wounds. In many large cities and in some smaller cities, Little Theater groups are active. They are competent in make up and would be interested in preparing the simulated injured for the exercise. In fact, members of the group may be glad to make up each other and become the main body of the disaster victims to be supplemented by school students, Boy Scouts or others. Furthermore, the building used for make up could be designated the site of the disaster. A physician and a nurse from the hospital holding the exercise could be present to tag the casualties and dispatch them to the hospital, where registration, sorting and all disaster medical care could be simulated. In the event no theater group is available, the drama department of a high school could provide the make up service. It has been the rule that made up individuals are the most enthusiastic participants in the exercise. These exercises are thought-provoking and most useful in preparing for disasters and/or an all-out war. All hospitals even though not accredited should carry out disaster exercises not only to improve their programs but to also interest citizens in the plans to meet disasters. By this means, larger numbers will enroll for Medical Self-Help courses and subsequently be assigned for various duties in the overall plans.

Hospitals should not be over-ambitious in the scope of an exercise until several have been carried out. It is well to set up the first exercise as for a disaster within the hospital (Phase One) before undertaking a test for a larger number of injured from a regional disaster (Phase Two). Where two or more hospitals are located in a community, subsequent exercises may be a joint test with two hospitals participating in order to include the established plans of communication and dispatch of casualties from the simulated site of the disaster.

Most if not all of the communities with civilian hospitals have a Civil Defense Director who has the responsibility of organizing 20 or more categories of CD service under the direction of the State Director of CD. Among these services, one of the most important is that of communications. The EHS Chief and the Chief of Disaster Medical Care should have full knowledge of the local and/or county communications system. Most disasters in the U.S.A. have been completely documented and reveal a marked relationship between adequate communications even if briefly interrupted and promptly restored and effective medical care.

Conversely, lack of adequate communications resulted in confusion and delays in the care of casualties particularly where hospitals with good plans had not been forewarned and were thus unable to promptly alert their professional and technical staff by means of a telephone pyramid notification system or other means such as messengers. An ideal medical communication system consists of a CD truck with short wave equipment that can alert all hospitals in the community or county as well as the CD fire, police and sheriff's offices, the Red Cross, the county medical society, nurses' registry and other organizations related to disaster care, some of which might require notification by telephone or messenger.

Physicians designated to proceed to the site of disaster could maintain constant communication with all hospitals in the district to notify them that a large disaster had occurred, its cause and a preliminary estimate of the number and type of casualties. Request would be made that the hospitals stand by for further directives but report back re the number of beds available or could be made available by discharging certain patients. This information enables the physicians at the disaster site to control the dispatch of victims to the hospitals according to their facilities for reception and care. Meanwhile, all district hospitals should become ready to alert their disaster personnel to implement their disaster plans. This communication system will eliminate many areas of confusion and will prevent undue overloading of certain hospitals when others are in a position to receive patients. The American Hospital Association has provided its member hospitals with brochures and check lists on disaster plans.

During the past several years, numerous large scale exercises have been held in many parts of

the U.S.A., many of which have for Phase Three — a thermonuclear attack. Notable among these was Operation Prep Pitt which after five annual exercises for Pittsburg and Allegheny County was succeeded in May, 1964 by Operation WESTPA. Forty-two hospitals in nine counties participated with six sponsors and twenty-two participating agencies. The Saturday morning exercise from 8:00 A.M. to 1:00 P.M. was preceded by a Friday evening symposium. A three-day community disaster exercise was conducted at Tupper Lake, New York and during this OPERATION SUN DRUM II several thousands of injured and homeless converged on the village, many brought in on boxcars. They were then rushed on stretchers to Sunmount Veterans Hospital augmented by a 200-bed portable facility. This was reportedly the largest exercise ever conducted in New York State to test its preparedness.

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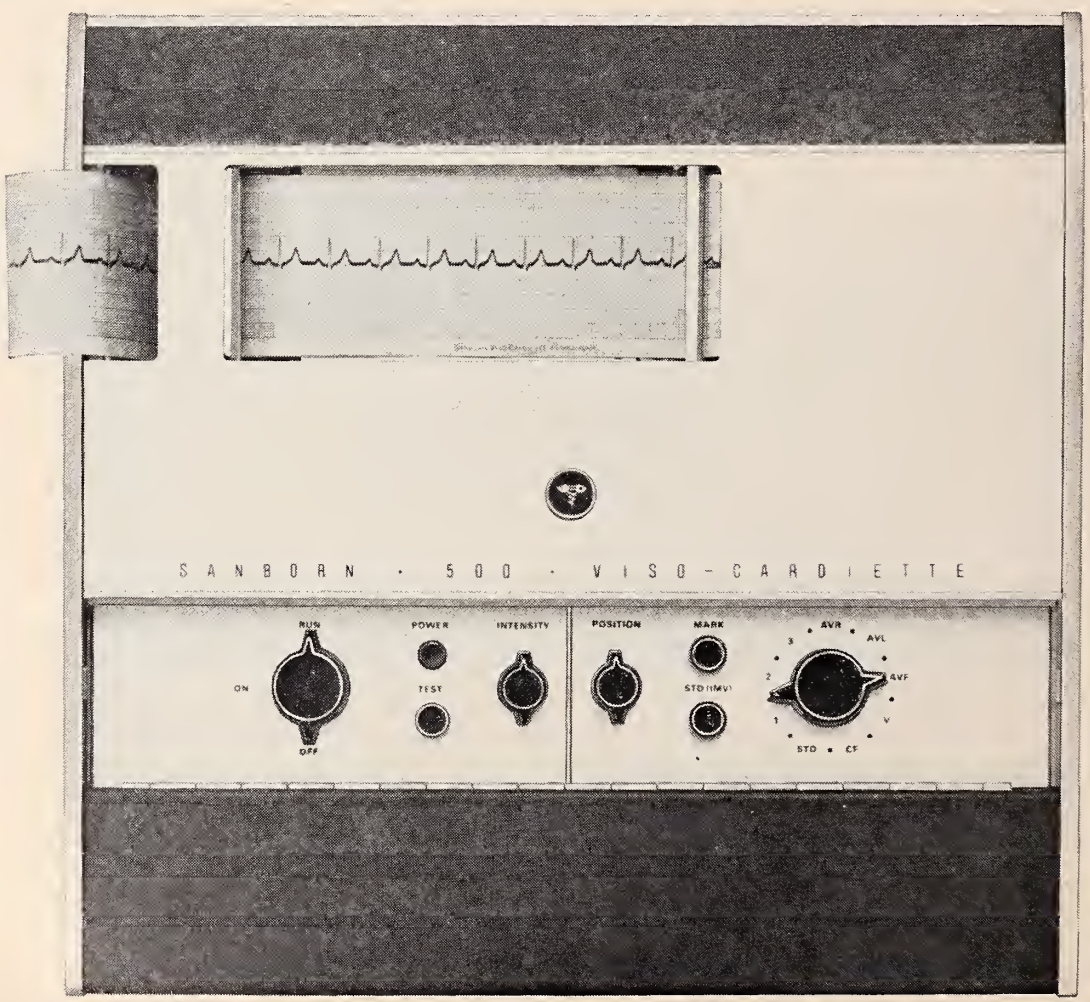


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WILLIAM RAYMOND POTZLER
1928 - 1964

Bill Potzler was born August 4, 1928 in Chicago, Illinois. He spent his childhood in Chicago and moved as an adult to South Bend, Indiana.

A combat veteran of the Korean War, he matriculated as an undergraduate at the University of Chicago, later transferred to and received his B.S. from the University of Indiana in 1956.

Dr. Potzler was graduated from Medical School of the University of Indiana in 1960 and interned at St. Joseph's Hospital, South Bend, Indiana in 1961.

Following his internship he came to Nogales to engage in general practice where in 1962 he was elected President of the Santa Cruz County Medical Society. He was a member of the Legislative Committee of the State Medical Society, Southern Arizona Heart Association, local medical advisor of the American Cancer Society and National Heart Association.

On September 19, 1964 while moving concessions in preparation for the Knights of Columbus picnic he fell or was blown from the back of a pick-up truck sustaining cerebral contusions and hemorrhage from which he died on the 21st day of September never regaining consciousness.

Dr. Potzler was Post Surgeon for the V.F.W., a member of the Rotary Club, President of the National Rifle Association, and a Trustee of the Knights of Columbus. His death stunned both cities of Nogales because of his popularity and activity in community projects.

He is survived by his wife, Mary; a daughter Michelle age 9; and sons Mark 8, Martin 4, Mathew 3 and William Raymond Jr., age one month, who was born two weeks after his father's death.

The William R. Potzler Educational Trust Fund was initiated by friends who are interested in contributing towards the education of his young family.



DUDLEY T. FOURNIER, M.D.
1897-1964

To render adequate tribute to a gentleman physician of the caliber of the recently deceased Dr. Dudley T. Fournier is no easy task as his accomplishments and influence in the practice of medicine in Arizona were definitely more than immeasurable.

Born in Sudbury, Ontario, on February 16, 1897, and to his last days still enjoying the friendships of many of his native countrymen, he left Canada after completing his medical training at McGill University in 1920 and practicing in the towns of Chapleau and Capreal, Ontario. His medical training had been interrupted for a year during which he served with the Royal Canadian Navy Medical Service.

In 1925 he arrived in Phoenix where he became an associate of Doctors E. Payne Palmer, Sr., W. Vivian and F. Milloy in a group which was later to become the Southwest Medical Clinic. By virtue of his ardent interest in many phases of medicine he became a member of local, state, and national associations.

During World War II his untiring energies were taxed to the utmost as he succeeded in being as busy doing night duty that must have been as demanding as his office and hospital practice. Subsequently from 1949 until 1954 he was plagued with a series of progressively more severe coronary attacks that forced his retirement in this latter year. His energies could not be deterred by a single form of disease, and as his health improved he devoted his time to travelling to South America and a World Cruise, in addition to painting, playing bridge and fishing. While participating in a fishing expedition the final coronary attack claimed his life in a fishing boat at White Clay Lake, Wisconsin, on August 22, 1964.

Wallace M. Meyer, M.D.



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*Clinical report on file, Medical Department, A. H. Robins Co., Inc.

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DANGEROUS PRESCRIPTION

Medicare will Imperil, Not Advance, the Nation's Welfare

In the hectic months since sudden tragedy thrust him into the Presidency, Lyndon B. Johnson has emerged as, among other things, King of the Hill. Not since Franklin Roosevelt's memorable Hundred Days has a Chief Executive won so many legislative battles in such short order. Out of the hopper and into the statute books, for better or for worse, have marched federal pay raises, meat import quotas, cotton and wheat legislation, aid for mass transit, the interest equalization tax, the anti-poverty program, the biggest tax cut in history and the hotly controversial civil rights bill. Dazzled by this mastery of normally balky lawmakers, one keen observer commented that "The President collects improbable Congressional triumphs the way other Texans collect French impressionists."

Ten days ago, Mr. Johnson reached for — and grasped — what was in some ways the biggest prize of all. For the first time in history, his lieutenants persuaded the Senate to approve a program of hospital insurance for the elderly, financed under Social Security. However, the President's triumph in winning acceptance for a measure thrice rejected since 1957 is no victory for the American people. This country, humanitarian by tradition and by instinct, is scarcely neglecting its senior citizens. Day by day, it is showing fresh ingenuity and flexibility in meeting that challenge, not least by giving private enterprise its head. Under the circumstances, piling a wholly new program of hospital and nursing home care atop an existing mountain of Social Security commitments cannot be justified, financially or socially. On the first count, it would put a further incalculable strain on the already over-burdened old age retirement system. Even worse, extending the paternalistic approach into this vast new area inevitably would tend to sap the sturdy self-reliance with which most Americans are now seeking to build up health protection for their sunset years. In short, medicare, despite the medicine-man claims of its pitchmen, would aggravate, rather than cure, the nation's ills.

It is easy to forget how much Social Security already is being asked to do. Since it was launched in 1935, group after group has been added to the roster of beneficiaries, age limits have been lowered, benefits increased and eligibility broadened. In 1956, Congress bundled in a whole new class of recipients, the disabled. The latest tally shows a total of 19.4 million Americans regularly receiving checks, amounting to nearly $1.3 billion a month. Because Congressmen would rather vote benefits than taxes, Social Security outlays in four of the past five years have topped income, and the Old Age and Survivors Trust Fund has dwindled from a peak of $22.5 billion in 1956 to $19.6 billion this June. What's more, quite aside from medicare, benefit payments in the years to come inevitably will swell, along with the number of persons covered.

Now the world's greatest deliberative body has voted, 49-44, to tuck medicare into the welfare package. (The measure soon will go to conference, since a House-passed version steps up cash benefits but omits medical care.) Besides offering a boost of $7 a month to retired and disabled workers, the Gore-Anderson bill provides up to 45 days a year of government-paid hospital care per illness for all persons aged 65 or over, os as many as 180 days if the patient pays part of the cost. It also allows 60 days a year in hospital-affiliated nursing homes. Even by the Administration's estimate, the cost of this new beneficence would run to $3 billion in the first year.

To potential recipients, that sum may sound like a bonanza. The other side of the coin, however, is the mounting burden on everyone who works. Three decades ago, payroll deductions ran to at most $30 a year for employee and employer alike — a modest 1% apiece on an earnings base of $3,000. As Congress over the years raised benefits and extended them to new groups, the bite steadily grew. This year the levy runs to a maximum of $175, and even with no further boost in benefits, financial or medical, it is scheduled to mount further. Tossing in medical care, the Senate bill would raise the ante by 1971 to $291 for both the worker and his boss, an aggregate bite, out of the first $5,000 of every breadwinner's earnings, or no less than 10.4%. Thus the government's take from the nation's pay envelopes would crash through the

10% barrier which even most welfare-state enthusiasts long have held is the maximum the public could be induced to accept.

Yet even this melancholy milestone would not mark the end of the road. For it is, if not official policy, at least official habit, to underestimate the nation's welfare outlays. No less an authority than the International Association of Health Underwriters, basing its conclusions on millions of cases, warns that medicare costs would run to double what HEW experts forecast. Perhaps the most damning evidence comes from an unlikely source: Robert J. Myers, chief actuary of the Social Security Administration. Had the 1960 King-Anderson version of the measure been passed, he concedes in the light of hindsight, its current costs would exceed by one-half those originally foreseen; the 1957 model, the Forand bill, today would be underfinanced by more than 50%. Unhappily, there is no reason to believe that government seers today are more proficient in the art of prophecy than in the past.

The costs of this prescription for a healthier America, then, in the judgment of the most experienced observers, are bound to outrun Washington's sugar-coated estimates. Furthermore, the benefits will be far more niggardly than the public, at least, has been led to expect. Surgical care, fees of physicians, dental work, eyeglasses and drugs received outside a hospital, for example, are excluded from the Senate bill. Off limits, too, are all costs of care in nursing homes that are not affiliated with hospitals — a provision that leaves out in the cold no fewer than 95% of the 10,000 such facilities now jammed with patients. Even HEW Secretary Anthony J. Celebrezze grants that his agency will foot the bill for only 25% to 30% of the medical costs of those over 65. This is a far cry indeed from "ending the health worries of America's aged," as some enthusiasts phrase it.

The bitter truth is that medicare instead would compound those worries. For it would thrust bureaucracy into an area already well served by both private enterprise and public charity. At the end of 1962, no fewer than three out of four Americans 65 or older had some means of meeting their health care costs. For those in want, the resources now available range from general welfare assistance to special aid under the Kerr-Mills Act. Those able to stand on their own feet financially enjoy an ever-widening choice of coverages, from Blue Cross and Blue Shield to the variety of policies issued by insurance companies. By raising the false hopes of government-issued security, medicare threatens to weaken, if not to destroy, the incentive for every citizen to prepare as best he can for his old age.

Once the long arm of government reaches into this broad field, no man can say — in view of the all-too-familiar tendency of welfare programs to grow like Topsy — how far it ultimately will reach. The medical profession long has held that medicare is merely an opening wedge for some kind of socialized National Health Service in the British fashion. Suspicion will not down that the doctrs' diagnosis is right. If so, this much is as certain as death and taxes; the eventual cost in human as well as financial terms will soar like a fever chart.

Barron's
September 14, 1964

BRAIN WAVES SHOW DIFFERENT RESPONSE TO WINE VS. MARTINIS

It is no secret that the taste buds can tell the difference between different alcoholic beverages. But the human brain apparently can discriminate between them, not by taste alone, but by different emotional reactions to the drinks, according to a group of American and Italian physicians.

One pattern of brain waves seem to be produced by wine.

Another pattern is produced by a very dry martini cocktail.

The brain wave patterns set up by wine indicate that it has a tranquilizing effect and contributes to the sense of well-being, while those from a dry martini show it allays anxiety and dulls reaction to stress. This has been demonstrated by a complex set of experiments reported in the current issue of the **Quarterly Journal of Studies on Alcohol.**

The effects of different beverages are not all in the head either. The investigators studied muscle as well as brain function and found that wine gives a greater decrease in muscular tension than does a martini.

A STUDY OF THE EFFECTS OF SELECTED VARIABLES ON HOSPITAL UTILIZATION

by Richard L. Durbin and Gordon Antelman

■ THIS PAPER REPORTS the results of a statistical study of the relationships between each of two hospital utilization variables, admission rates and length of stay, and four independent variables, number of beds, number of physicians, health insurance coverage, and per capita income. The most striking relationship found is that between the admission rate and number of beds; admission rates increase very rapidly as the number of beds increases. Admission rates appear to decrease as the number of physicians or per capita income increases, and probably increase slightly as the proportion of people covered by health insurance increases. This latter finding, however, is in considerable doubt. Length of stay appears to increase with each of the four independent variables, the strongest relationship being with the proportion of people covered by health insurance.

The literature in this area is not too extensive. M. I. Roemer has also studied relationships between admission rates and insurance,[1] and admission rates and the supply of physicians[2] and gives reference to several related papers. Our findings concerning these two relationships are in the same direction as Roemer's but not nearly as strong.

Methodology

The basic data utilized in this study are the values of the six variables for the 48 continental states for the year 1960 as given in *table 1.*

Two separate multiple regression* analyses were carried out, the first regressing length of stay on the four independent variables (beds, physicians, insurance, and income) and the second regressing the admission rate on the same four independent variables. This technique permits an evaluation of the strength of the relationships between each of the two dependent variables and each of the four independent variables which is independent of the values of the remaining variables.

The model for length of stay assumed here is that

$$(I)\quad Y_1 = \alpha_1 + \beta_{11}(X_1 - \overline{X}_1) + \beta_{12}(X_2 - \overline{X}_2) + \beta_{13}(X_3 - \overline{X}_3) + \beta_{14}(X_4 - \overline{X}_4) + e_1$$

where

X_1 = number of beds per 1000 population
X_2 = number of physicians per 100,000 population
X_3 = percentage of population covered by health insurance
X_4 = average per capita income
Y_1 = average length of stay in days
$\overline{X}_i$ = average of the 48 values of X_i, i = 1,2,3,4

and

α and the four βs are parameters to be estimated from the data.

e_1 is a normally distributed random variable with mean o and unknown standard deviation σ_1 (which can be estimated from the data).

Similarly, the assumed model for the admission rate per 1000 persons per year (Y_2) is

$$(II)\quad Y_2 = \alpha_2 + \beta_{21}(X_1 - \overline{X}_1) + \beta_{22}(X_2 - \overline{X}_2) + \beta_{23}(X_3 - \overline{X}_3)\ \beta_{24}(X_4 - \overline{X}_4) + e_2$$

Equation (I) can be interpreted as follows. The parameter α_1 is the expected value of the random variable

$$Y_1 \text{ if } X_i = \overline{X}_i \text{ for } i = 1,2,3,4.\ \beta_{11}$$

is called the partial regression coefficient of Y_1 on X_1 and is the expected increase (or decrease if β_{11} is negative) in Y_1 for each unit increase in X_1, for any fixed values of X_2, X_3, and X_4. The interpretation of the other βs in equation (I) and those in equation (II) is analogous. Our primary interest is in the values of the eight βs which measure the strengths of the relationships between the dependent and independent variables.

Findings and Interpretations

Estimating the values of the parameters from the data results in the two multiple regression equations

$$(1')\quad \overline{Y}_1 = 7.18 + .200(X_1 - 3.62) + .0068(X_2 - 113.88) + .033(X_3 - 68.21) + .00035\ (X_4 - 2065).$$

and

$$(II')\quad \overline{Y}_2 = 132.25 + 25.30(X_1 - 3.62) - .084(X_2 - 113.88) + .048(X_3 - 68.21) - .00742\ (X_4 - 2065).$$

Mr. Durbin is director of the Tucson Medical Center, Tucson, Arizona. At the time this article was written he was associate director, Graduate Program in Hospital Administration and assistant professor in the Graduate School of Business at the University of Chicago.

Mr. Antelman is a member of the faculty of the Graduate School of Business at the University of Chicago.

Table 1. The Values of Six Variables for the 48 Continental States for the Year 1960.

State	Length of Stay	Adm. Rate	Beds/ 1000	Phys/ 100,000	Pop. Cov. by Ins. %	Per Capita Income	Predicted Values		Residuals	
							$\overline{Y}_1$	$\overline{Y}_2$	$\overline{Y}_1 - Y_1$	$\overline{Y}_2 - Y_2$
	Y_1	Y_2	X_1	X_2	X_3	X_4				
Connecticut	7.7	125	3.4	168	86	2863	8.37	117.1	−.67	7.9
Maine	7.2	123	3.3	101	66	1900	6.90	126.3	.3	−3.3
Massachusetts	8.4	137	4.2	178	77	2519	8.18	138.6	.22	−1.6
N. Hampshire	7.3	144	4.4	131	67	2074	7.42	150.4	−.12	−6.4
Rhode Island	8.9	113	3.6	130	87	2228	7.96	130.1	.94	17.1
Vermont	7.3	153	4.5	155	79	1859	7.92	153.1	−.62	− .1
New Jersey	8.1	108	3.1	124	69	2665	7.38	113.8	.72	−5.8
New York	9.7	133	4.3	192	91	2789	8.85	138.6	.85	−5.6
Pennsylvania	9.0	128	4.1	142	87	2266	8.16	141.4	.84	−13.4
Delaware	7.8	119	3.6	119	81	3013	7.97	124.9	−.17	−5.9
Florida	6.9	122	3.1	125	60	1988	6.86	118.3	.04	3.7
Georgia	6.0	126	2.7	94	64	1608	6.56	113.8	−.56	12.2
Maryland	9.2	94	3.2	140	63	2394	7.22	116.7	1.98	−22.7
N. Carolina	6.5	137	3.4	93	67	1574	6.78	132.0	−.28	5.0
S. Carolina	7.0	114	2.8	78	60	1397	6.27	119.0	.73	−5.0
Virginia	7.7	109	3.0	106	57	1848	6.56	118.3	1.14	−9.3
W. Virginia	7.1	157	4.1	90	76	1674	7.24	149.7	−.14	7.3
Illinois	8.2	135	3.9	129	84	2613	8.05	134.7	.15	.3
Indiana	7.6	118	3.1	100	80	2179	7.41	120.0	.19	−2.0
Michigan	7.5	130	3.3	112	80	2322	7.58	123.0	−.08	7.0
Ohio	7.9	128	3.4	120	86	2339	7.86	125.0	.04	3.0
Wisconsin	7.4	155	4.3	106	73	2171	7.46	149.5	−.06	5.5
Alabama	6.4	114	2.8	78	56	1462	6.16	118.4	.24	−4.4
Kentucky	6.4	124	3.3	90	59	1543	6.47	129.6	−.07	−5.6
Mississippi	5.8	114	2.9	78	46	1173	5.75	122.6	.05	−8.6
Tennessee	6.9	134	3.3	106	67	1545	6.84	128.6	.06	5.4
Iowa	7.6	137	3.9	106	66	2003	7.09	140.3	.59	−3.3
Kansas	7.8	136	4.1	102	67	2068	7.16	145.3	.64	−9.3
Minnesota	8.0	160	4.8	136	76	2054	7.82	160.7	.18	− .7
Missouri	8.4	129	3.9	115	81	2199	7.71	138.8	.69	−9.8
Nebraska	7.3	145	4.4	109	67	2113	7.28	152.0	.02	−7.0
N. Dakota	7.3	181	5.1	80	68	1741	7.13	174.9	.17	6.1
S. Dakota	7.0	154	4.5	72	56	1842	6.59	159.1	.41	−5.1
Arkansas	6.1	122	2.9	89	50	1341	6.01	120.6	.09	1.4
Louisiana	6.4	150	3.9	114	52	1604	6.54	141.9	−.14	8.1
Oklahoma	6.9	120	3.2	98	68	1848	6.91	124.5	−.01	−4.5
Texas	6.0	132	3.2	102	61	1924	6.73	123.3	−.73	8.7
Arizona	6.9	117	3.0	100	52	2011	6.41	117.3	.49	− .3
Colorado	7.3	154	3.8	157	77	2320	7.89	131.7	−.59	22.3
Idaho	5.1	129	3.2	87	50	1796	6.22	125.0	−1.12	4.0
Montana	6.6	167	5.0	96	61	2018	7.08	168.6	−.48	−1.6
Nevada	7.3	138	3.9	102	55	2844	6.99	133.9	.31	4.1
New Mexico	5.9	114	2.8	77	45	1806	5.91	115.4	−.01	−1.4
Utah	6.1	117	2.8	132	70	1910	7.15	111.2	−1.05	5.8
Wyoming	5.9	173	4.6	87	67	2334	7.25	157.2	−1.35	15.8
California	7.2	112	3.0	160	69	2741	7.63	107.7	−.43	4.3
Oregon	6.3	133	3.5	130	74	2259	7.53	126.7	−1.23	6.3
Washington	5.6	134	3.2	130	74	2317	7.49	118.7	−1.89	15.3

Sources:
(1) Length of stay—Hospital Administrators Guide Issue, Part 11. August, 1961.
(2) Admission Rate—Hospital Administrators Guide Issue, Part 11. August, 1961.
(3) Physicians/100,000—Research Division, American Medical Association.
(4) Percentage of population covered by insurance—Source Book of Health Insurance Data 1961.
(5) Per capita income—The World Almanac and Book of Facts, 1962, New York World-Telegram and Sun.

In these two equations, $\overline{Y}_1$ and $\overline{Y}_2$ are the values of Y_1 and Y_2 predicted by the multiple regression equations (*table* v).

In words, it is estimated that the average length of stay in days

(1) increases by .2 for each unit increase in the number of beds per 1000 persons;

(2) increases by .0068 for each unit increase in the number of physicians per 100,000 persons;

(3) increases by .033 for each percentage point of increase in health insurance coverage;

(4) increases by .00035 for each dollar increase in average per capita income.

It is estimated that the admission rate per 1000 persons

(5) increases by 25.30 for each unit increase in the number of beds per 1000 persons;

(6) decreases by .084 for each unit increase in the number of physicians per 100,000 persons;

(7) increases by .048 for each percentage point of increase in health insurance coverage;

(8) decreases by .00742 for each dollar increase in average per capita income.

A certain amount of care is necessary in interpreting these estimates of the βs (the estimate of β_{11} will be denoted by b_{11}, etc.) First, the strengths of the relationships between Y_1 and each of X_1, X_2, X_3, and X_4, as measured by b_{11}, b_{12}, b_{13}, and b_{14} are not directly comparable due to the unequal amounts of variation in the different Xs. For example, b_{11}, (.200) is much larger than b_{14} (.00035). But b_{11} relates to an increase of one bed per 1000 persons and b_{14} to an increase of one dollar in average per capita income and an increase of one bed per 1000 persons relative to the variation in beds per 1000 persons is much larger than an increase of one dollar in average of per capita income relative to the variation in average per capita income. One method of achieving comparability is through the use of "standard partial regression coefficients." The standard partial regression coefficient of Y on X is denoted by b_{11}' and defined by

$$b_{11}' = b_{11} \sqrt{\Sigma (X_1 - \overline{X}_1)^2 / \Sigma (Y_1 - Y_1)^2}$$

(The numerator under the radical is a measure of the variation of X_1, the denominator is there simply to keep b_{11}' of roughly the same magnitude as b_{11}.) The remaining b's are similarly defined. The values of both the bs and b's are given in *table 2*.

A second reason for care in interpreting the bs is that each b is an estimate of a β. The reliability of each estimate is measured by its standard error. The standard error of b_{11} is denoted by s_{b11}, that of the b_{12} by s_{b12}, etc. These are also given in *table 2*.

Table 2. The Values of the bs and b's and the Number of Standard Errors by which b Deviates from 0.

Subscript	b	b'	s_b	t	P($b\beta<0$)
11	.200	.132	.174	1.15	.12
12	.00680	.194	.00564	1.21	.11
13	.0330	.393	.0131	2.53	.01
14	.000350	.153	.000348	1.01	.16
21	25.3	.900	2.13	11.89	0
22	−.0837	−.129	.0690	−1.21	.11
23	.0484	.031	.160	.30	.38
24	−.00742	−1.75	.00425	−1.74	.04

It should be noted that a particular b may be a very reliable (small s_b) estimate of the corresponding β and yet be uninteresting because b is close to zero. Of course, the converse may also occur; that is, we may get a relatively unreliable estimate which, in spite of this, is very interesting because b is far away from zero.

The fifth column of *table 2* gives $t = b/s_b$, the number of standard errors by which b deviates from 0. These can be utilized to perform tests of significance for hypothesis concerning the β or to calculate confidence intervals for the βs. We prefer to give a Bayesian interpretation of the results;[3] the sixth column of *table 2* will be relevant to this.

Strictly speaking, the first requisite for this interpretation is the specification by each reader of his personal prior probability distribution for the unknown parameters. Roughly speaking, this is a precise expression of the reader's beliefs and information concerning the values of the parameters prior to seeing the results of this study. This prior information can be combined with the information from this study to give a posterior probability distribution for the unknown parameters from which probability statements concering the unknown parameters can be deduced. Of course, different prior distributions result in different posterior distributions.

Quite obviously, we cannot give here all of the possible posterior distributions. There is, however, a particularly important type of prior distribution, termed "diffuse," for which approximate results in the form of posterior probability statements can be made. A person's prior distribution is diffuse if his prior probability is spread out, approximately uniformly, over all of the possible paramater points "near" the observed paramater point and is not too large elsewhere.

[3] For a detailed explanation of multiple regression, examples, and computational instructions the reader is referred to Chapter 14 of **Statistical Methods** by Snedecor (The Iowa State College Press, 1956).

This particular type of prior probability distribution has the feature of having no influence on the posterior probabilities; in a sense, the data "speak for themselves."

Now, assuming a diffuse prior distribution, the posterior distribution of each β is approximately Normal with mean equal to the b which estimates β and standard deviation equal to s_b. Hence, from a table of Normal deviates and column five of *table 2*, probability statements concerning any of the βs can be deduced. The last column of *table 2* gives certain particularly interesting posterior probabilities, namely, the probabilities that the true βs are of different sign than their estimates (in which case the product of b and β will be negative) or, to put it another way, the probability that the true *direction* of the effect of the variable under consideration is different from the direction indicated by the data. For example, there are approximately 12 chances in 100 that average length of stay really decreases as the number of beds increases, contrary to what the data indicate; there are, of course, 88 chances in 100 that the direction of the effect indicated by the data is correct.

Examination of either of the last two columns of *table 2* shows that the most definite result of this study concerns the relationship between number of beds and the admission rate; the chances are much less than 1 in a trillion that the admission rate decreases as beds increase.

The least definite result concerns the relationship between the admission rate and insurance, the chances being 38 in 100 that the admission rate decreases as insurance coverage increases.

From column three of *table 2*, the strongest relationship in the first regression analysis is between Y_1 (length of stay) and X_3 (insurance coverage). The relationships between Y_1 and the three remaining independent variables are of comparable strength. The strongest relationship in the second regression analysis is between Y_2 (admission rate) and X_1 (number of beds). The relationships between Y_2 and X_2 (number of physicians) and Y_2 and X_4 (income) are of intermediate strength while that between Y_2 and X_3 (insurance) is weak.

Having estimates of the magnitude and direction of the effects of the independent variables on the dependent variables makes it easy to speculate on the reasons for these effects. Increases in the admission rate and length of stay as number of beds increases probably reflects an excess of demand for beds over the supply of beds. As the number of physicians increases, length of stay tends to increase but admission rates tend to decrease. If, as the number of physicians per 100,000 persons increases, more patients are treated without hospitalization, both of these effects would be expected, for then, fewer "short-stay" patients would be admitted to hospitals. Increases in length of stay expected with increases in insurance coverage or average per capita income might be explained by an increased willingness on the part of physicians or patients toward longer stays for the insured and the wealthy.

The small size and the uncertainty of the expected increase in the admission rate with increases in insurance coverage indicates that there is probably no more and possibly less "abuse" of this type of insurance than automobile insurance or unemployment compensation. The expected decrease in admission rates with increases in income may reflect an increase in treatment outside of hospitals or decreases in the incidence of illness, due, for example, to better diets.

Conclusions

Length of stay increases as each of the four independent variables increases.

The admission rate increases as the number of beds increases. It decreases as the number of physicians increases and as the average per capita income increases and is affected very little by insurance coverage.

This study is based on data from 48 states. For local situations, the effects of independent variables may be different. However, in the absence of more refined local information, these results could be used as a first approximation for estimating the effects of changes in the independent variables on admission rates and lengths of stay. ■

1. Roemer, M. I.: Hospital utilization under insurance. J.A.H.A. 33: 18 (Sept. 16) 1959.
2. Roemer, M. I.: Hospital utilization and the supply of physicians. J.A.M.A. 178:10 (Dec. 9) 1961.
3. An elementary discussion of Bayesian methods is given by Schlaifer. Introduction to Statistics for Business Decisions, McGraw-Hill, New York, 1961.

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AIR AMBULANCE COMPANY APOLOGIZES TO PHYSICIANS

An aviation company which unknowingly offered a 10% commission to physicians on air ambulance cases has apologized for its "inadvertent" action.

The offer was made in a letter to Arizona MDs telling of the new facilities for an air ambulance service of Cutter Aviation, Inc., Phoenix, Arizona.

Many of the physicians immediately sent the letters to the Maricopa County Medical Society, the Arizona Medical Association, Inc., and the American Medical Association's Dept. of Medical Ethics. They pointed out that they felt that such an offer was improper.

Ethics Cited: The physicians were advised that Section 7 of the Principles of Medical Ethics provides that an MD "should neither pay nor receive a commission for a referral of patients." The AMA Judicial Council has uniformly interpreted this section to mean that the doctor may receive no profit whatever from his patient other than for medical services rendered, it was pointed out.

Accordingly, said a spokesman for the Department of Medical Ethics, it is absolutely unethical to accept any rebate of any kind, in any form and from any source.

Company informed: A letter from Joseph C. Ehrlich, M.D., chairman of MCMS's Professional Committee, explained this ruling to the aviation company.

Cutter Aviation quickly answered. It explained that for several years it had offered a "finder's fee" of 10% of the charter revenue "to anyone who has referred any type of charter business to us". In apologizing, Cutter Aviation also added, "We have received a number of letters from doctors advising us of the unethical practice of accepting a commission. Wish we had known, before sending the letter."

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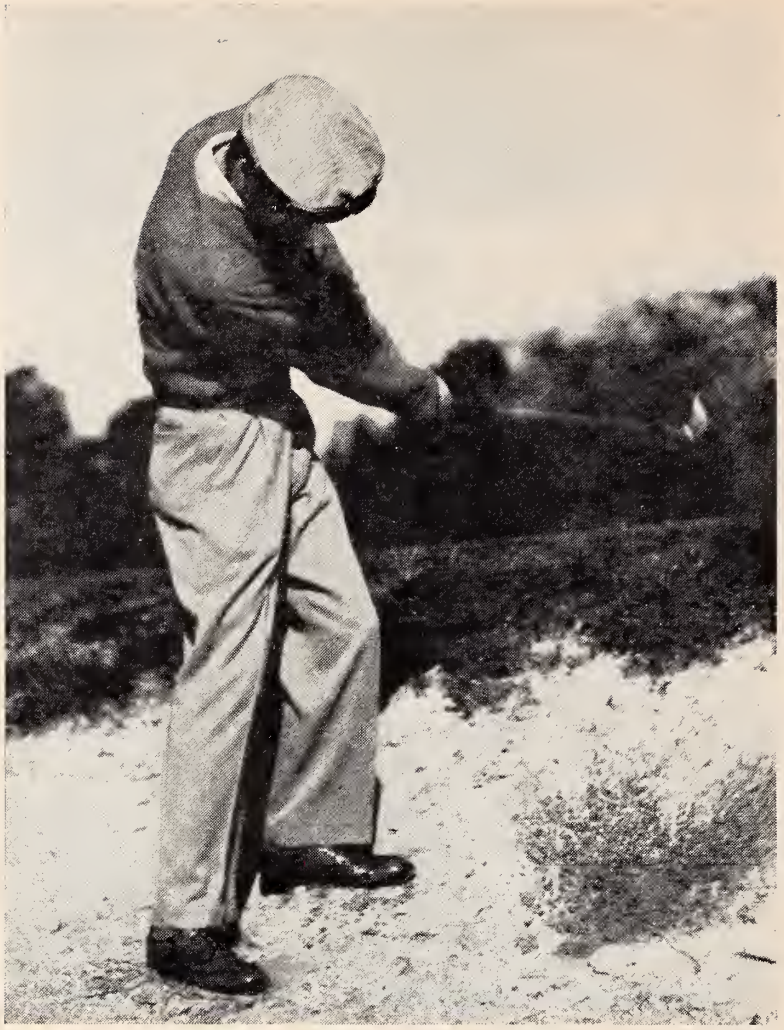
matters of editorial interest to the medical profession

This is, even under ordinary circumstances, the most busy time of the year. It's the climax of the football season; it's the introduction of the holiday season; and on top of it all in this year 1964, it was a national presidential election year.

We in our own bailiwick at Blue Cross/Blue Shield have been busy, too. Our Professional Relations Department, under the direction of Carl Behle, has conducted a series of Briefing Sessions for medical assistants in doctors' offices. These meetings have been held in Phoenix, Tucson, Flagstaff, Prescott and Yuma, with more yet to come. To date, nearly four hundred girls in all have attended these sessions. The meetings have been held to explain the newly devised claim cards and procedures. Assisting Carl Behle in conducting these meetings have been Don Yost, Physicians Relations Manager for the Phoenix district, and Fred Miller, his counterpart for the Tucson district. The girls say that they really enjoy these meetings, and that they are very helpful. Watch for announcements of them in your area.

By now, all doctors should have received a mailing of replacement pages for their manuals that consisted of new procedure codes, nomenclature and the current fee schedules. So far the response to the new claim procedures and cards has been generally quite good. Naturally, there are some bugs still in the program that have been brought to our attention and these are all being worked out as they appear. We do want you to know we appreciate your interest and guiding remarks in these matters. They have been extremely helpful. Your patience as we develop these new procedures will eventually simplify a great deal of the detail work in your offices.

We know it is a little early, and we're not trying to jump the gun, but this will be our only column before the holidays, and we would like, in behalf of all the Blue Cross/Blue Shield staff and its two boards of directors, to extend our warmest greetings as the holiday season approaches, hoping you have in sequence an enjoyable Thanksgiving, Christmas and New Year.



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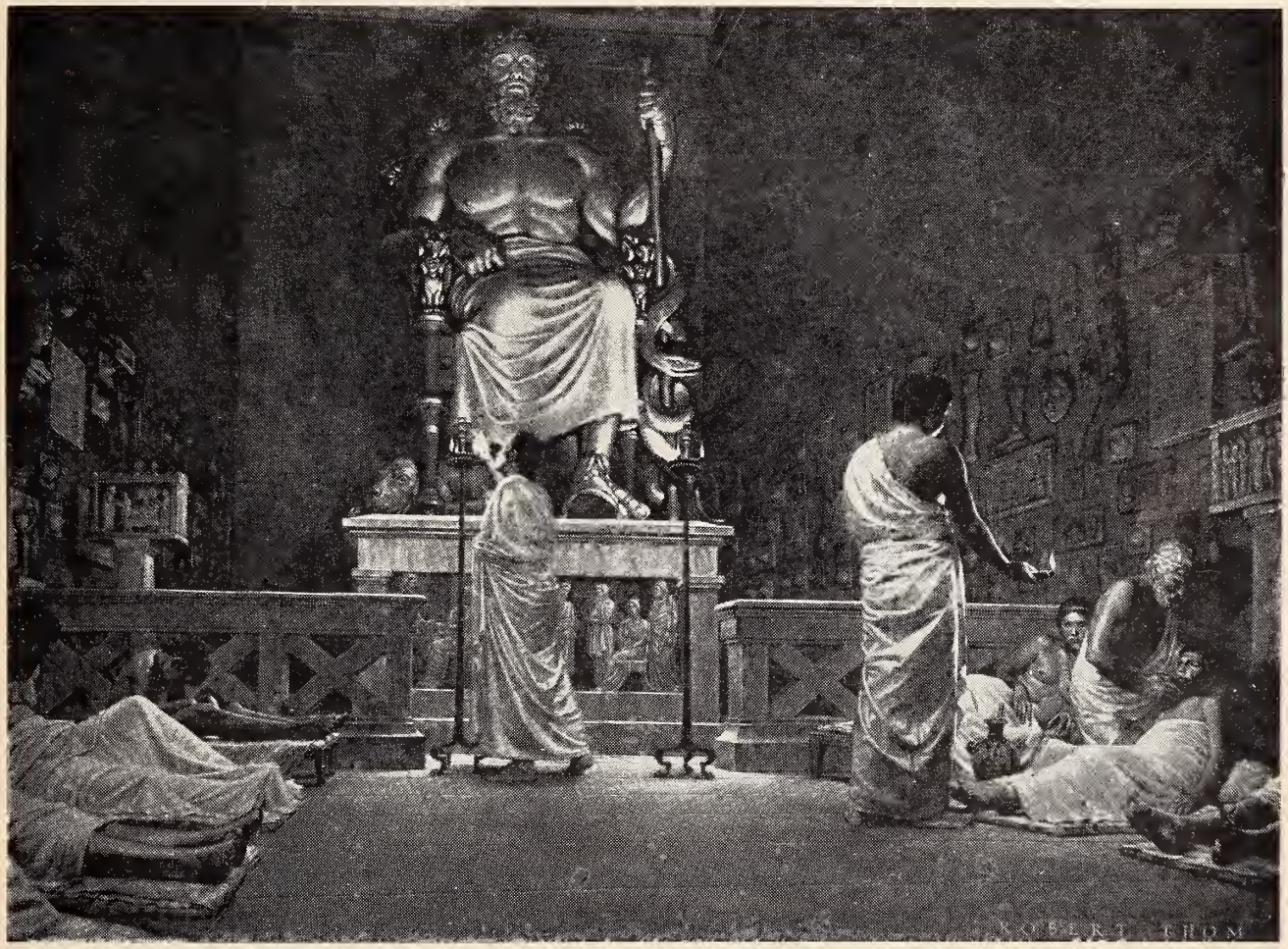
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